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Guidance for the Reregistration of Pesticide Products Containing Chlorothalonil as the Active Ingredient

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GUIDANCE FOR THE REREGISTRATION OF PESTICIDE PRODUCTS

CONTAINING

CHLOROTHALONIL
AS THE ACTIVE INGREDIENT

EPA CASE NUMBER 096

ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF PESTICIDE PROGRAMS

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INTRODUCTION

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA Section 3(g), as amended in 1978, directs EPA to reregister all pesticides as expeditiously as possible. Each registrant of a manufacturing use product of the active ingredient who wishes to continue to sell or distribute that product must apply for reregistration.

To fulfill this Congressional mandate, we have established the Registration Standards program which will review all pesticide active ingredients first registered before January 1, 1977. These pesticides will be reviewed in use clusters which are prioritized on the basis of a ranking scheme giving preference to pesticides used on food and feed crops.

The Registration Standards program involves a thorough review of the scientific data base underlying pesticide registrations and an identification of essential but missing studies which may not have been required when the product was initially registered or studies that are now considered insufficient. Our reassessment results in the development of a regulatory position, contained in this document, on each pesticide and its uses. The regulatory position may require the registrant to modify product labels to provide additional precautionary statements, restrict the use of the pesticide to certified applicators, provide reentry intervals, modify uses or formulation types, specify certain packaging limitations, or other requirements to-assure that proper use of the pesticide poses no potential adverse effects to human health or the environment.

The scientific review, which is not contained herein but is available upon request, concentrates on the technical grade of the active ingredient and identifies missing generic data. However, during the review of these data we are also looking for potential hazards that may be associated with the formulated (end-use) products that contain the active ingredient. If we find serious concerns, we will bring formulated products under the provisions of the Registration Standards program to the extent necessary to protect the public.

EPA has the authority under FIFRA §3(c)(2)(B) to require that certain registrants submit generic data that will answer our questions regarding the hazard that may result from the intended use of the pesticide under review. Further, §3(c)(2)(B) provides that these data are to be submitted by those registrants who do not qualify for the formulator's exemption [FIFRA §3(c)(2)(D)]. Normally, this means that the registrants who are responsible for filling the data gaps are the manufacturing-use product producers (basic suppliers of the active ingredient). However, end-use producers will not qualify for the formulator's exemption if the source of their active ingredient: (1) is not registered with EPA, and/or (2) is produced by the registrant's firm, or a firm which has ownership in common with the registrant's firm. These end-use producers can qualify for the formulator's exemption if they change their source of supply to a registered source, provided the source does not share ownership in common with the registrant's firm. If the end-use product registrant decides to switch sources, a new Confidential Statement of Formula, EPA Form 8570-4, must be submitted to the appropriate Product Manager within 90 days of receipt of this Guidance Document. The chart on the following page shows what is generally required of those who do and do not qualify for the formulator's exemption in the Registration Standards program.

If you decide to request the Agency to discontinue the registration of any of your products subject to the reregistration requirements of this Guidance Document, please notify the Product Manager named in the cover letter, within 90 days from the receipt of this document, that you wish to voluntarily cancel the registration(s). If you decide to maintain you product registration(s), you must provide the information described in the following pages within the time-frames outlined. EPA will issue a notice of intent to cancel or suspend the registration of any currently registered product if you fail to comply with the requirements set forth in this Guidance Document.

This Guidance Document will be supplemented by EPA with additional information about compliance with data support requirements. In Union Carbide Agricultural Products Co., Inc v. Ruckelhaus, EPA was recently enjoined from implementing in any way the "mandatory data licensing" aspects of section 3(c)(1)(D) of FIFRA. EPA is assessing the implications of the injunction for the reregistration process. Because this situation is currently unresolved, EPA has decided to proceed with the requirements in the Guidance Document which do not relate to compliance with the section 3(c)(1)(D) provisions and to supplemnet the Document with additional guidance when circumstances permit. Failure to comply with the provisions of the subsequent guidance will also result in issuance by EPA of an intent to cancel the affected product registration (s).

Registrants are reminded that section 6(a)(2) of FIFRA requires you at any time to submit factual information raising concerns of possible unreasonable adverse effects of a pesticide. You should notify the Agency of interim results of studies in progress if those results show possible adverse effects.

PRODUCTS SUBJECT TO THE REGISTRATION STANDARDS PROGRAM	ACTION(S) REQUIRED TO MAINTAIN REGISTRATION
I. Products That Do Not Qualify For The Formulator's Exemption	
A. Single Active Ingredient Products*	These products must be reregistered. To obtain reregistration, labeling, packaging and data requirements must be satisfied in accordance with the Registration Standards Guidance Document.
B. Multiple Active Ingredient Products	These products will not be reregistered at this time. However, generic data required to continue the registration of the active ingredient under review, as described in the Registration Standards Guidance Document, will be required and some labeling precautions may also be required.
II. Products That Do Qualify For The Formulator's Exemption	Only when additional restrictions or labeling are needed to protect man or the environment will these products be subject to the Registration Standard requirements. Affected products will be dealt with in a variety of ways, including but not limited to the Label Improvement Program and special intent to cancel notices.

* End-use products of registrants who also produce a manufacturing-use product will not be required to be reregistered provided that registrant fulfills the requirements specified in the Guidance Document for manufacturing-use product(s). Such end-use products will be subject to the labeling changes required for products in "II" above. If there are no manufacturing-use products registered by any company end-use products will be required to be reregistered.

NOTE: If all registrants in "I" above fail to meet the requirements in I-A and B above, then the registrants in "II" lose their right to qualify for the formulator's exemption and become subject to the requirements in I-A and B.

I. REGULATORY POSITION

A. INTRODUCTION

This chapter describes the regulatory position of the Environmental Protection Agency ("the Agency") on chlorothalonil. This position is based on an evaluation of all registered manufacturing-use products (MUP's) containing chlorothalonil as the sole active ingredient. Future requests for registrations of substantially similar products will be covered by this standard. Dissimilar products will require amendments to the standard. This document provides the rationale for the Agency's position and the criteria for registration. It also discusses the need for special labeling requirements and the adequacy of the data supporting existing tolerances.

In developing its regulatory position, the Agency determines whether available data indicate that a pesticide has met the criteria for unreasonable adverse effects found in Section 162.11(a) of Title 40 of the U.S. Code of Federal Regulations (CFR). Pesticides meeting these criteria are candidates for a Special Review, an intensive risk/benefit analysis which is a modification of the Rebuttable Presumption Against Registration (RPAR) process. The Agency's determination as to whether any criteria have been met and its rationale for any regulatory action are summarized in the regulatory position of this standard.

"Chlorothalonil" is the accepted common name for the compound, 2,3,5,6-tetrachloroisophthalonitrile recognized by the American National Standards Institute. Trade and other names used for chlorothalonil include: Bravo®, Nopcocide® N-96 Technical, Daconil®, Chlorothalonil Technical, Brovomil®, Mold-Ex®, Groutcide®, and Termil®. The Chemical Abstracts Service (CAS) Registry number is 1897-45-6, and the Office of Pesticides Program's Internal Control Number (EPA Shaughnessy number) is 081901.

B. USE PROFILE

Chlorothalonil is registered as a broad spectrum non-systemic protectant fungicide for use on apricots, beans (dried and snap), broccoli, brussel sprouts, cabbage, carrots, cauliflower, celery, cherries (sour and sweet), corn (sweet), cucumbers, melons, mint, nectarines, onions (dry bulb and green), papayas, parsnips, passion fruit, peaches, peanuts, plums, potatoes, prunes, pumpkins, soybeans, squash (summer and winter), tomatoes, certain ornamentals, turf, and as a cotton seed treatment. The fungicide is marketed in wettable powder, granule, liquid, and flowable formulations. Tablets containing 8 gram of active ingredient, a 20% chlorothalonil smoke generator formulation, and a paint additive containing chlorothalonil are also marketed.

Food crop application rates range from 0.75 to 3.00 pounds of active ingredient per acre, while the rate for cotton seed treatment is 0.8 to 1.13 ounce of active ingredient per 100 pounds of seed. Ornamental and turf application rates range from 1.125 to 7.50 pounds of active ingredient per acre, depending on the specific site and on the pest to be controlled.

See the accompanying EPA Index for the pests controlled by chlorothalonil on individual use sites.

C. REGULATORY POSITION

Based on a review and evaluation of the available data and other relevant information on chlorothalonil, the Agency has made the following determinations:

1. Registrants not qualifing for a formulator exemption must provide or agree to develop all data specified in the tables of this standard to maintain existing registrations or to permit new chlorothalonil registrations. The Agency may amend this standard or initiate further regulatory actions after it has reviewed the submitted data. All data must be generated according to the Good Laboratory Practices specified in 48 FR 53946.

2. Registrants must revise labeling, as specified under the "Required Labeling Section" in order to maintain existing registrations or to permit new chlorothalonil registrations. Labeling changes mandated by this document must be on products released for shipment as of May 1, 1985.

3. Manufacturing-use pesticide products containing chlorothalonil as a sole active ingredient may be registered for sale, distribution, formulation and use in the United States, subject to the terms and conditions specified in this standard. Applicants having products not conforming to this standard must apply to amend the document so those products containing chlorothalonil may be registered and reregistered under this standard. Mixtures and end use products containing chlorothalonil may not be registered or reregistered under this standard. However, the use patterns of the end-use products were considered for the purpose of determining generic data requirements for chlorothalonil.

4. Technical chlorothalonil may not contain more than 0.05% (500 ppm) of hexachlorobenzene (HCB) as a manufacturing impurity in order to be registered or reregistered under this standard. The method of analysis for HCB must be acceptable to the Agency.

5. Chlorothalonil is considered a skin sensitizer. Therefore, special labeling is required.

6. The Agency has not reached a final decision concerning whether technical chlorothalonil is an oncogen and hence no evaluation of this effect against the criteria in 40 CFR §162.11(a) for adverse effect to man or his environment has been made. The 4-hydroxy-2,5,6-trichloroisophthalonitrile metabolite (4-hydroxy metabolite or degradate) does not currently exceed these criteria.

7. The general metabolism for chlorothalonil in plants and animals is not adequately clarified for the purpose of determining the completeness of the toxicology data or for reassessing the present tolerances. If plant or animal metabolism studies demonstrate the presence of a toxicologically significant metabolite, other than the 4-hydroxy metabolite, additional crop residue and toxicity data and large animal feeding studies may be required.

8. Reassessment of the existing tolerances for residues of chlorothalonil and its metabolites must await submission of crop residue data for the impurities (hexachlorobenzene and pentachlorobenzonitrile) which are present in technical chlorothalonil and the rat oncogenicity and plant and animal metabolism studies for technical chlorothalonil.

9. Within one year from the last treatment, the treated field may be replanted with any crop listed on the chlorothalonil label. After one year from treatment, any leafy vegetable (i.e. lettuce, spinach, kale, etc.) may also be replanted.

10. Due to the potential oncogenicity of chlorothalonil, applications to add new crop use and to establish new tolerances will be considered on a case to case basis. Any use that contributes more than 1% to the theoretical maximum residue contribution (TMRC) will be considered as an unacceptable risk. The Agency will not establish any tolerance if the TMRC exceeds the maximum permissible intake (MPI) of 0.015 mg/day until the oncogenic issue is resolved.

11. The 4-hydroxy degradate has the potential to leach in most soils. Because of the importance of assessing the environmental impact of this leaching potential, certain data will be requested on an expedited basis.

12. Reentry protection data requirements of 40 CFR §158.140 are considered data gaps for chlorothalonil and must be submitted. Therefore an interim 24-hour reentry internal has been applied until the receipt and evaluation of reentry data.

D. REGULATORY RATIONALE

The Agency has determined the following:

1. Chlorothalonil is stable to hydrolysis in acidic and neutral water up to 72 days. Under alkaline conditions, it hydrolyzes to the 4-hydroxy degradate and to a 3-cyano-2,4,5,6-tetrachlorobenzamide. The half-life of chlorothalonil in alkaline water is 28 to 72 days. The 4-hydroxy degradate is stable to hydrolysis at ambient temperature in acidic, neutral and alkaline solutions.

2. Chlorothalonil degrades at a moderate rate in most soils, with a half-life of less than 30 days. Lack of moisture tends to slow down this degradation process. Photodegradation does not enter into the degradation process. The rate of breakdown increases as temperature rises. The major degradate formed is the 4-hydroxy-2,5,6-trichloroisophthalonitrile. Other degradates are 3-cyano-2,4,5,6-tetrachlorobenzamide, trichloro-3-carboxybenzamide, 3-cyanotrichlorohydroxybenzamide, and 3-cyanotrichlorobenzamide. Chlorothalonil is immobile in most soil, however it is moderately mobile in sand. The 4-hydroxy degradate is moderately mobile in all soils tested.

3. Insufficient data are available concerning the amount of HCB residues remaining in crops as a result of chlorothalonil treatment. Therefore the Agency is not reaching a final decision on an acceptable level of of HCB impurity to be allowed in the technical chlorothalonil. See item 14.

4. Dog and rat metabolism studies with chlorothalonil indicate 95% of the chemical is eliminated in the feces within 24 hours at low doses but is noticeably delayed (96 hours) at high doses. No residues of chlorothalonil, per se, are detected in the urine, blood or tissues in either species. The excreted residues as analyzed contained 57% and 86% (in the rat and dog respectively) of chlorothalonil per se. The remainder of the residues, trichlorodicyanoaniline and 2,4,5-trichloroisophthalonitrile, appear to be peculiar to feces. Low levels of the 4-hydroxy metabolite are found as metal salts or as conjugates in the kidney and liver of dogs and in the liver of rats. This metabolite is considered a transitory (nonstored) metabolite. However the fate of the 4-hydroxy metabolite is not adequately elucidated.

5. No detectable residues of chlorothalonil were found in milk, urine, or feces from a cow fed 5 parts per million of chlorothalonil for 4 days. Chlorothalonil was rapidly metabolized in rumen fluid to 2 unidentified metabolites and 4-hydroxy metabolite. Other studies in cows fed chlorothalonil and its 4-hydroxy metabolite, either singly or in combination, indicate residues of chlorothalonil and the 4-hydroxy metabolite will be found in the meat, milk, fat and meat byproducts.

6. A test, conducted by Industrial Biotest Laboratories (IBT), demonstrates chlorothalonil is a skin sensitizer. However, this study is invalid and will have to be replaced. The Agency considers dermal sensitization in guinea pigs as a data gap. Nonetheless, the Agency will regulate chlorothalonil as a skin sensitizer based on the information received through voluntary reported incidents. Because of the potential sensitization effect, precautionary and reentry statements are required on the label.

7. The Agency has reviewed a rat teratology study and rabbit teratology study utilizing chlorothalonil and a rat and a rabbit teratology study utilizing the 4-hydroxy metabolite. Under the conditions of the studies, these compounds did not produce teratogenic effects at any of the dose levels tested.

8. The Agency has reviewed a rat three generation reproduction study with feeding levels of chlorothalonil at 0, 0.15%, 1.5%, and 2.0% of diet. The parental NOEL (No Observed Effect Level) is less than 0.15% based on reduced growth and renal and gastric effects. The reproductive NOEL is 1.5% based on offspring performance.

9. The Agency has reviewed a 2-year dog feeding study. Levels of dosing as low as 120 parts per million (ppm) produced only epithelial vacuolation in the renal tubules. The NOEL in this study was determined to be 60 ppm. This study was used to calculate the ADI (Allowable Daily Intake) since the dog is considered the most sensitive species. The ADI is 1.5 mg/kg body weight/day.

10. The Agency has reviewed a rat chronic feeding study which elucidated the toxic effect on the renal system. A NOEL was tentatively set as 60 ppm. However, the study was not considered adequate to evaluate oncogenic potential. This NOEL may change as a result of the evaluation of the ongoing rat chronic feeding/oncogenic study. The results of this study may have an impact on the tolerance reassessment.

11. The review has identified a potential oncogenic concern with chlorothalonil. The National Cancer Institute's oncogenic studies in mice and rats indicate that chlorothalonil demonstrated an oncogenic effect in the renal tissue of the Osborne-Mendel male rat but did not demonstrate an oncogenic effect in $B_6C_3F_1$ mice. However deficiencies in laboratory practices and in reporting of these studies by the National Cancer Institute raise questions concerning the soundness of the results. SDS Biotech Corporation submitted a new oncogenicity study in CD-1 mice. This study indicates chlorothalonil, at dietary levels of 750 to 3000 ppm, produces squamous mucosa tumors of the stomach in treated groups. The weight of the evidence analysis shows these tumors were determined to be compound related but not dose related. The neoplastic changes in kidney, including adenomas and carcinomas of the renal cortical tubules were increased in males for all treated groups, but not in females. The neoplastic changes did not demonstrate a positive trend, hence no clear evidence of oncogenicity in kidney.

    In order to determine whether significant evidence relating to oncogenicity would raise prudent concerns of unreasonable risk to man or the environment, the Agency is requiring a rat oncogenicity study. SDS Biotech Corporation will be submitting a rat chronic feeding/oncogenicity study in 1985. Because data evaluated to date have been either flawed or inconclusive, the Agency believes that no useful decision could be made concerning the oncogenicity issue until the rat study is evaluated. Once the Agency has evaluated these additional data, a determination will be made whether EPA should initiate a Special Review.

    However, to minimize a proliferation of additional uses, the Agency will consider each request for tolerance and/or registration of a new use on a case-by-case basis with respect to incremental risk and/or exposure. Calculation of the risk will be considered preliminary and will utilize the results of the NCI study with Osborne-Mendel rats. This study was utilized because it gives the most conservative risk using a one-hit model. All additional new uses will be evaluated as to the dietary risk as well as exposure risks. The preliminary upper limit risk calculation for the dietary exposure from the existing uses is 1.49×10^{-5}.

12. Using the 4-hydroxy metabolite, carcinogenicity studies in rats and mice did not demonstrate oncogenic potential at doses up to and including 1500 ppm (214 mg/kg body weight) and 20 mg/kg body weight in mice and rats, respectively. There was however, clear evidence of anemia at doses greater than 3 mg/kg body weight in rats. A no observed effect level for non-oncogenic effects was not demonstrated in the mouse study. At the dose level of 375 ppm and higher, there was evidence of RBC hemolysis, increased reticulocyte count, morphological changes in leukocytes and erythrocytes, and hemosiderin in the spleen.

13. A wide battery of mutagenicity studies using both chlorothalonil and the 4-hydroxy metabolite did not indicate mutagenic activity for either compound.

14. Chlorothalonil, as manufactured, is contaminated with hexachlorobenzene (HCB) and pentachlorobenzonitrile (PCBN) at levels that might accumulate in tissues of plants and animals due to the repeated applications of chlorothalonil. The data on the resulting residues of these compounds in the commodities on which chlorothalonil is used are inadequate to assess the toxicological significance of these impurities.

15. Data has shown that chlorothalonil is extremely toxic to all aquatic organisms and can cause reduction in reproduction at very low concentrations. The major degradate, 4-hydroxy-2,5,6-trichloroisophthalonitrile, of chlorothalonil is slightly toxic to aquatic organisms.

16. At day 30 of exposure, radiolabelled chlorothalonil and its ^{14}C residues bioaccumulate in bluegill sunfish tissue with the following bioaccumulation factor: 264 for whole fish, 76 for edible tissue, and 514 for viscera. Bioaccumulation plateaus after 14 days of exposure. Depuration of radiolabelled chlorothalonil and its ^{14}C residues is also equally rapid with a half-life of approximately 10 days. The ^{14}C 4-hydroxy degradate bioaccumulation and depuration is similar to that of chlorothalonil.

17. Chlorothalonil exhibits an extremely low oral toxicity in birds. However, its major degradate is considered moderately toxic to birds. Because of the high use rates of chlorothalonil and hence increased amount of the 4-hydroxy degradate on sites usually inhabited by nesting birds, additional studies on the effect of the 4-hydroxy degradate on the reproduction of birds are required.

18. Residues of ^{14}C labelled chlorothalonil and its degradation products found in aerobic soils 14 weeks after treatment were also found in rotated lettuce, green beans, and carrots under confined conditions. No plateau for residues in the rotated crops was reached in the 2 to 3 months the confined study was run. A field rotational crop study indicated that metabolites identified in the confined studies may be present in crops at least one year after eight (8) applications of chlorothalonil with the exception of leafy crops. Residues are found in all other rotational crops.

19. The available data indicate that technical chlorothalonil is corrosive to the eyes (category I); is moderately toxic via inhalation (category II); has relatively low acute oral and dermal toxicities (Category III); and is not a primary dermal irritant (Category IV). Manufacturing use products must be labeled in accordance with 40 CFR §162.10 for precautionary statements.

20. It is not the Agency's policy to cancel or to withhold registration merely because data are missing or inadequate (See Sections 3(c)(2)(B) and 3(C)(7) of the FIFRA). Rather, publication of this standard provides a mechanism for identifying data needs for registration under the standard and allows for the upgrading of labels during the period in which the required data are being developed. These data will be reviewed and evaluated when they are received and the Agency will determine at that time how they will affect the registration(s) of chlorothalonil.

E. CRITERIA FOR REGISTRATION UNDER THIS STANDARD

To be subject to this standard, products must meet the following conditions:

1. Contain chlorothalonil as the sole active ingredient and,

2. Conform to the acute toxicity limits, product composition, and use pattern requirements listed in Section F of this document.

The applicant for registration or reregistration of products subject to this standard must comply with all terms and conditions described in it, including commmiting to fill data gaps on a schedule agreed to by both this Agency and the applicant. All applicants for registration under this standard must follow the instructions contained in this standard and complete and submit the appropriate forms within the time specified.

F. ACCEPTABLE RANGES AND LIMITS

1. Product Composition Standard

Technical grade products must contain at least 96 percent chlorothalonil as the sole active ingredient. Each manufacturing-use product formulation proposed for registration must be fully described with an appropriate certification of limits. In addition, the active ingredient found in the manufacturing-use chlorothalonil products must be substantially similar to that in currently registered technical products. Any manufacturing-use product not meeting these requirements will be considered a new product and will not be registerable under this standard.

2. Acute Toxicity Limits

The Agency will consider registration of technical grade and manufacturing-use products containing chlorothalonil with Toxicity Category I for eye irritation Toxicity Category II for acute inhalation, Toxicity Category III for oral and dermal toxicity, and Toxicity Category IV for primary skin irritation, provided that the labeling of those products bears appropriate precautionary statements.

3. Use Patterns

To be registered under this standard, manufacturing-use products containing chlorothalonil must be labeled for formulation only into end-use products for fungicides used for the control of a wide variety of fungal problems on the following terrestrial food crop and non-food sites: Food - apricots, beans (snap and dried), broccoli, brussel sprouts, cabbage, carrots, cauliflower, celery, cherries (sweet and sour), sweet corn, cotton seed, cucumbers, melons, mint, nectarines, onions (dry bulb and green), papayas, parsnips, passion fruit, peaches, peanuts, plums, potatoes, prunes, pumpkins, soybeans, squash (summer and winter), and tomatoes; Non Food - certain ornamentals, and turf.

G. REQUIRED LABELING

All technical grade, manufacturing-use, and end-use products containing chlorothalonil must bear appropriate labeling stating the sites of use. Other portions of the guidance package contain specific information regarding label requirements as specified in 40 CFR, § 162.10.

The following statements must appear on all manufacturing-use product labels:

> Under the heading of Environmental Hazards: "Do not discharge effluent containing this product directly into lakes, streams, ponds, estuaries, oceans or public waters unless this product is specifically identified and addressed in an NPDES permit. Do not discharge effluent containing this product into sewer systems without previously notifying the sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the Environmental Protection Agency."
>
> Under the heading of Storage and Disposal: "Pesticide wastes are toxic. Improper disposal of excess pesticide, pesticide formulation or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance."
>
> Under the heading of General Directions: "Note to User: Technical chlorothalonil may produce temporary allergic side effects characterized by redness of the eyes, mild bronchial irritation and redness or rash on exposed skin areas. Persons having allergic reaction should contact a physician."
>
> Under the heading of Hazards to Humans and Domestic Animals: " Danger, corrosive, causes severe eye damage. Skin sensitizer. Do not get in eyes, on skin, or on clothing. Wear goggles or face shield, rubber gloves, long sleeve shirt, and long pants when mixing, loading and applying this product. May be fatal if inhaled. Do not breathe vapors. Harmful if swallowed or absorbed through the skin.
>
> Under the heading of First Aid: "In case of eye contact, flush eyes with water for 15 minutes, get medical attention immediately. In case of skin contact, wash exposed areas of skin with soap and warm water. This product may produce temporary allergic side effects characterized by redness of the eyes, mild bronchial irritation and redness or rash on exposed skin areas. Person having allergic reaction should contact a physician. Note to physician: Persons having an allergic reaction respond to treatment with antihistamines or steroid creams and/or systemic steriods. In case of inhalation, remove person to fresh air and get medical attention immediately."

The following statements must appear on all end-use product labels:

Under the heading of Environmental Hazards: "This product is toxic to fish, aquatic invertebrates, and marine/estuarine organisms. Runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not apply directly to water or wetlands. Do not apply when weather conditions favor drift from treated areas."

Under the heading of Storage and Disposal: "Pesticide wastes are toxic. Improper disposal of excess pesticide, pesticide spray or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance."

Under the heading of General Directions: "Note to User: This product may produce temporary allergic side effects characterized by redness of the eyes, mild bronchial irritation and redness or rash on exposed skin areas. Persons having allergic reaction should contact a physician."

Under the heading of General Directions: "Note to User: Wear long sleeve shirt, long pants, and gloves while mixing, loading and applying this product."

For all agricultural uses, under the heading of General Directions: "Note to user: Do not enter treated area to perform hand labor within 24 hours of application unless protective clothing is worn."

For all agricultural uses, under the heading of General Directions: "Note to user: Do not rotate to crops other than those listed on labels within 12 of the last treatment. After 12 months from the last application, leafy vegetables (i.e. spinach, lettuce, kale, etc.) may also be rotated.

Under the heading of Hazards to Humans and Domestic Animals, the words "Skin Sensitizer" must be added to the precautionary statements.

Under the heading of First Aid: "Note to physician: Persons having an allergic reaction respond to treatment with antihistamines or steroid creams and/or systemic steriods."

H. TOLERANCE REASSESSMENT

For chlorothalonil, the present Theoretical Maximum Residue Contribution (TMRC) is 0.7682 mg/day/1.5 kg diet and it presently amounts to 85.36% of an Acceptable Daily Intake (ADI) of 0.0150 mg/kg/day which for a 60 kg person is 0.9000 mg/day.

Presently, in the United States tolerances (§180.275) are established for residues of chlorothalonil and its metabolite, 4-hydroxy-2,5,6-trichloroisophthalonitrile, in or on the raw agricultural commodities listed below:

Commodities	Parts per million
Apricots	0.5
Bananas(NMT 0.05 ppm in edible pulp)	0.5
Beans (dry)	0.1
Beans (snap)	5.0
Broccoli	5.0
Brussel Sprouts	5.0
Cabbage	5.0
Carrots	1.0
Cauliflower	5.0
Celery	15.0
Cherries (sweet & sour)	0.5
Corn, Sweet (k-cwhr)	1.0
Cucumber	5.0
Melons	5.0
Mint Hay	2.0
Nectarines	0.5
Onions (dry bulb)	0.5
Onions (green)	5.0
Papayas	15.0
Parsnips	1.0
Passion Fruit	3.0
Peaches	0.5
Peanuts	0.3
Plums	0.2
Potatoes	0.1
Prunes	0.2
Pumpkins	5.0
Soybeans	0.2
Squash (summer & winter)	5.0
Tomatoes	5.0

The tolerances listed in 40 CFR §180.275 are adequately supported for the following commodities: apricots, cherries (sweet and sour), nectarines, peaches, plums, and prunes. Beans(dried), mint hay, and papayas require additional residue data on hexachlorobenzene and pentachlorobenzonitrile impurities to be adequately supported. The data would support a group tolerance of 0.5 ppm for stone fruit. All other tolerances are lacking complete residue data which are being required in this document.

Seed treatments have been considered to be non-food uses in the past and data for these uses were not required. Based on current policy, seed treatments are considered food uses unless plant metabolism and residue chemistry data support a non-food classification. None of these data have been submitted, therefore it is considered a data gap.

Codex Alimentarius' maximum residue limits have been established for numerous commodities. The maximum residue limits were originally established for chlorothalonil and its 4-hydroxy metabolite. As a result of a recent review of chlorothalonil, Codex Alimentarius changed the maximum residue limits to be reflective of only chlorothalonil residue per se. In its deliberations, a temporary ADI of 0.005 mg/kg is used. The residue limits established are numerically identical to the U. S. tolerances for the following commodities: beans (snap), broccoli, brussel sprouts, cabbage, carrots, cauliflower, celery, corn (sweet), cucumbers, melons, onions, potatoes, pumpkins, squash, and tomatoes. However, differences from the established U. S. tolerances exist for whole bananas (codex limit 0.2 ppm), cherries (codex limit 10 ppm), peaches (codex limit 25 ppm), and whole peanuts (codex limit 0.5 ppm). Also maximum residue limits have been set for cereal grains at 0.2 ppm, citrus at 5.0 ppm, grapes at 5.0 ppm and lettuce and kale at 10 ppm.

I. PRELIMINARY ANALYSIS OF CURRENT BENEFITS AND RISKS

The Agency will not reach a decision on the oncogenicity potential of chlorothalonil, until the evaluation of the rat oncogenicity study. If the rat study demonstrates chlorothalonil has oncogenic potential, the Agency will then assess the data on chlorothalonil to establish certain benefit and risk criteria in accordance with 40 CFR Part 162.11(a).

II. REQUIREMENT FOR SUBMISSION OF GENERIC DATA

A. This portion of the guidance document is a Notice issued under the authority of FIFRA Section 3(c)(2)(B) and describes, in table format, the data required for maintaining the registrability of each product. Additionally, a bibliography (Appendix II-1) is included that identifies that data considered as part of the data base supporting this standard. EPA has determined that additional generic data described in this Notice must be submitted to EPA for evaluation in order to maintain in effect the registration(s) of your product(s) identified as an attachment to the cover letter accompanying this guidance document. As required by FIFRA Section 3(c)(2)(B), you are required to take appropriate steps to comply with this Notice.

EPA may suspend the registration of each of those products unless, within the specified time, you have informed EPA how you will satisfy the requirements of this Notice. Any such suspension will remain in effect until you have complied with the terms of this Notice.

B. What Generic Data 1/ Must Be Submitted. You may ascertain which generic data you must submit by consulting Table A at the end of this chapter. That table shows all the generic data needed to evaluate the continued registrability of all products, and the dates by which the data must be submitted. The required data must be submitted and any necessary studies must be conducted in accordance with EPA-approved protocols, the Pesticide Registration Guidelines 2/, or data collected under the approved protocols of the Organization for Economic Cooperation and Development (OECD). If you wish not to develop data which are necessary to support the registration or reregistration of certain uses appearing in your labeling, you may delete those uses at the time you submit your revised labeling.

Also for certain kinds of testing (generally ecological effects), EPA requires the test substance to be a "typical formulation," and in those cases EPA needs data of that

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1/ Generic data pertain to the properties or effects of a particular ingredient, and thus are relevant to an evaluation of the risks of all products containing that ingredient (or all such products having a certain use pattern), regardless of any such product's unique composition or use. Product-specific data relate only to the properties or effects of a product with a particular composition (or a group of products with closely similar composition).

2/ The Pesticide Registration Guidelines were reproposed on November 24, 1982 in 47 Federal Register 53192.

type for each major formulation category (e.g., emulsifiable concentrates, wettable powders, granulars, etc.) These are classified as generic data and when needed are specified in Table A. EPA may possess data on certain "typical formulations" but not others. Note: The "typical formulation" data should not be confused with product-specific data (Table B) which are required on each formulation. Product-specific data are further explained in Chapter IV of this document.

C. Options Available for Complying With Requirements to Submit Data

Within 90 days of your receipt of this Notice you must submit to EPA a completed copy of the form entitled "FIFRA Section 3(c)(2)(B) Summary Sheet" [EPA Form 8580-1, Appendix II-2] for each of your products. On that form you must state which of the following methods you will use to comply with the requirements of this Notice:

1. (a) Notify EPA that you will submit the data, and

   (b) either submit the existing data you believe will satisfy the requirement, or state that you will generate the data by conducting testing. If the test procedures you will use deviate from (or are not specified in) the Registration Guidelines or protocols contained in the Reports of Expert Groups to the Chemicals Group, Organization for Economic Cooperation and Development (OECD) Chemicals Testing Programme, you must enclose the protocols you will use.

2. Notify EPA that you have entered into an agreement with one or more other registrants to jointly develop (or share in the cost of developing) the data. If you elect this option, you must notify EPA which registrant(s) are parties to the agreement.

3. File with EPA a completed "Certification of Attempt to Enter Into an Agreement With Other Registrants for Development of Data" (EPA Form 8580-6, Appendix II-3)*/

4. Request that EPA amend your registration by deleting the uses for which the data are needed. (This option is not available to applicants for new products.)

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*/ FIFRA Section 3(c)(2)(B) authorizes joint development of data by two or more registrants, and provides a mechanism by which parties can obtain an arbitrator's decision if they agree to jointly develop data but fail to agree on all the terms of the agreement. The statute does not compel any registrant to agree to develop data jointly.
(Footnote continued at bottom of next page)

5. Request voluntary cancellation of the registration(s) of your products for which the data are needed. (This option is not available to applicants for new products.)

D. Procedures for Requesting Changes in Testing Methodology and Extensions of Time

EPA recognizes that you may disagree with our conclusions regarding the appropriate ways to develop the required data or how quickly the data must be submitted. If the test procedures you plan to use deviate from (or are not specified in) the registration guidelines or protocols contained in the reports of the Expert Groups to the Chemical Groups, Organization for Economic Cooperation and Development (OECD) Chemicals Testing Programme, you must submit the protocol for Agency review prior to the initiation of the test.

If you think that you will need more time to generate the required data than is allowed by EPA's schedule, you may submit a request for an extension of time. The extension request must be submitted in writing to the Product Manager. The extension request should state the reasons why you conclude that an extension is appropriate. While EPA considers your request, you must strive to meet the deadline for submitting the required data.

(Footnote continued from previous page)

In EPA's opinion, joint data development by all registrants who are subject to the requirements to submit a pertinent item of data or a cost-sharing agreement among all such registrants is clearly in the public interest. Duplication of testing could increase costs, tie up testing facilities, and subject an unnecessarily large number of animals to testing.

As noted earlier, EPA has discretion not to suspend the registration of a product when a registrant fails to submit data required under FIFRA Section 3(c)(2)(B). EPA has concluded that it is appropriate to exercise its discretion not to suspend in ways which will discourage duplicative testing. Accordingly, if (1) a registrant has informed us of his intent to develop and submit data required by this Notice; and (2) a second registrant informs EPA that it has made a bona fide offer to the first registrant to share in the expenses of the testing [on terms to be agreed upon or determined by arbitration under FIFRA Section 3(c)(2)(B)(iii)]; and (3) the first registrant has declined to agree to enter into a cost-sharing agreement, EPA will not suspend the second firm's registration. While the first firm is not required to agree to jointly develop data, EPA is not required to force the second firm to engage in economically inefficient duplicative testing in order to maintain its registration.

TABLE A
GENERIC DATA REQUIREMENTS FOR CHLOROTHALONIL

Data Requirement	Composition [1/]	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)[2/]	Bibliographic Citation[2/]	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?[2/]
§158.120 Product Chemistry				
Product Identity:				
61-1 - Identity of Ingredients	TGAI	See Foot Note 2	Not Applicable	Yes
61-2 - Statement of Composition	TGAI	See Foot Note 2	Not Applicable	Yes
61-3 - Discussion of Formation of Ingredients	TGAI	See Foot Note 2	Not Applicable	Yes
Analysis and Certification of Product Ingredients				
62-1 - Preliminary Analysis	TGAI	See Foot Note 2	Not Applicable	Yes
62-2 - Certification of Limits	TGAI	See Foot Note 2	Not Applicable	Yes
62-3 - Analytical Methods for Enforcement of Limits	TGAI	See Foot Note 2	Not Applicable	Yes
Physical and Chemical Characteristics				
63-2 - Color	TGAI	See Foot Note 2	Not Applicable	Yes
63-3 - Physical State	TGAI	See Foot Note 2	Not Applicable	Yes
63-4 - Odor	TGAI	See Foot Note 2	Not Applicable	Yes
63-5 - Melting Point	TGAI	See Foot Note 2	Not Applicable	Yes
63-6 - Boiling Point	TGAI	Not Applicable[3/]		No
63-7 - Density, Bulk Density, or	TGAI	See Foot Note 2	Not Applicable	Yes

TABLE A
GENERIC DATA REQUIREMENTS FOR CHLOROTHALONIL

Data Requirement	Composition[1/]	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)[2/]	Bibliographic Citation[2/]	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?[2/]
Physical and Chemical Characteristics (continued)				
63- 8 - Solubility	TGAI OR PAI	See Foot Note 2	Not Applicable	Yes
63- 9 - Vapor Pressure	TGAI OR PAI	See Foot Note 2	Not Applicable	Yes
63-10 - Dissociation constant	TGAI OR PAI	See Foot Note 2	Not Applicable	Yes
63-11 - Octanol/water partition coefficient	PAI	See Foot Note 2	Not Applicable	Yes
63-12 - pH	TGAI	See Foot Note 2	Not Applicable	Yes
63-13 - Stability	TGAI	See Foot Note 2	Not Applicable	Yes
Other Requirements:				
64- 1 - Submittal of samples	Choice	Not Applicable		No

1/ Composition: TGAI = Technical grade of the active ingredient; PAI = Pure active ingredient; Choice = Choice of several test substances determined on a case-by-case basis.

2/ Data must be submitted no later than 6 months from the date of this Standard. Each registrant must submit all the the above data for each Manufacturing-Use product to support continued registration.

3/ Not required because the 96% technicals are solid at room temperature.

TABLE A
GENERIC DATA REQUIREMENTS FOR CHLOROTHALONIL

Data Requirements	Composition 1/	Does EPA Have Data To Satisfy This Requirement? (Yes, No, or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)? 2/
§158.125 Residue Chemistry				
171-4 - Nature of Residue (Metabolism)				
- Plants	PAIRA	Partially	00087333, 00087287, 00087294, 00087295, 05003661, 00029409, 00029407, 00087311, 00087292, & 00087293,	Yes 3/
- Livestock	PAIRA and plant metabolites	Partially	00087370, 00038919, 00041989, 00087331, 00058497, 00087254, 00038917, 00087291, 00038918, & 00038919	Yes 4/
171-4 - Residue Analytical Method				
- Plant residues	TGAI and metabolites	Yes	00087305, 00087312, 00087282, 00087354, 00039239, 00087338, 00087333, 00071752, 00071190, 00041736, 00039158, 00086627, 00086628, 00087329, 00087275, 00097505, & 00087289	No
- Animal residues	TGAI and metabolites	No		No
171-4 - Storage Stability Data	PAI	Yes	00071752, 00087354, 00039239, & GS0097001	No 5/

TABLE A
GENERIC DATA REQUIREMENTS FOR CHLOROTHALONIL

Data Requirements	Composition[1]	Does EPA Have Data To Satisfy This Requirement? (Yes, No, or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?[2]
§158.125 Residue Chemistry (continued)				
171-4 - Magnitude of the Residue-Residue Studies for Each Food Use				
- Crop Group #1 - Root and Tuber Vegetables[6]				
o Crop 1 - Carrots				
-- Crop field trials	TEP	Partially	00087302, 00087311, 00087323, 00087250, 00087287, & 00087255	Yes[7]
° Crop 2 - Parsnips (root)				
-- Crop field trials	TEP	No		Yes[9]
° Crop 3 - Potatoes				
-- Crop field trials	TEP	Partially	00087302, 00087323, 00087311, 00087367 00057699 & 00043701	Yes[10]
-- Processed Food/Feed	TEP	No		Yes[8]
- Crop Group #2 - Bulb Vegetables (Allium spp.)[11]				
° Crop 1 - Onions (dry bulb)				
-- Crop field trials	TEP	Partially	00087364 & 00087346	Yes[12]
° Crop 2 - Onions (green)				
-- Crop field trials	TEP	Partially	00087364 & 00087346	Yes[13]

TABLE A
GENERIC DATA REQUIREMENTS FOR CHLOROTHALONIL

Data Requirements	Composition 1/	Does EPA Have Data To Satisfy This Requirement? (Yes, No, or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)? 2/
§158.125 Residue Chemistry (continued)				
171-4 - Magnitude of the Residue-Residue Studies for Each Food Use				
- Crop Group #3 - Leafy Vegetables (except Brassica vegetables) 14/				
° Crop 1 - Celery				
-- Crop field trials	TEP	Partially	00087330	Yes 15/
- Crop Group #4 - Brassica (Cole) Leafy Vegetables 16/				
° Crop 1 - Broccoli				
-- Crop field trials	TEP	Partially	00087324, 00087250, 00087287, & 00087255	Yes 17/
° Crop 2 - Brussels Sprouts				
-- Crop field trials	TEP	Partially	00087324, 00087250, 00087287, & 00087255	Yes 18/
° Crop 3 - Cabbage				
-- Crop field trials	TEP	Partially	00087324, 00087250, 00087287, & 00087255	Yes 19/
° Crop 4 - Cauliflower				
-- Crop field trials	TEP	Partially	00087324	Yes 20/

TABLE A
GENERIC DATA REQUIREMENTS FOR CHLOROTHALONIL

Data Requirements	Composition[1]	Does EPA Have Data To Satisfy This Requirement? (Yes, No, or Partially)	Bibiographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?[2]
§158.125 Residue Chemistry (continued)				
171-4 - Magnitude of the Residue-Residue Studies for Each Food Use				
- Crop Group #5 - Legume Vegetables[21]				
° Crop 1 - Beans (dried)				
-- Crop field trials	TEP	Partially	00087338	Yes[22]
° Crop 2 - Snap Beans				
-- Crop field trials	TEP	Partially	00087329	Yes[23]
° Crop 3 - Soybeans				
-- Crop field trials	TEP	Yes	00087680 & 00029905	No
-- Processed Food/Feed	TEP	Partially	00029903 & 00029904	Yes[24]
- Crop Group #6 - Fruiting Vegetables (except Cucurbits)[25]				
° Crop 1 - Tomato				
-- Crop field trials	TEP	Partially	00087326, 00087250, 00087255, & 00087287	Yes[26]
-- Processed Food/Feed	TEP	Yes	00087326, 00087250, 00087255, & 00087287	No

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TABLE A
GENERIC DATA REQUIREMENTS FOR CHLOROTHALONIL

Data Requirements	Composition[1]	Does EPA Have Data To Satisfy This Requirement? (Yes, No, or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?[2]
§158.125 Residue Chemistry (continued)				
171-4 - Magnitude of the Residue-Residue Studies for Each Food Use				
- Crop Group #9 - Stone Fruits (continued)				
° Crop 5 - Plums and prunes				
-- Crop field trials	TEP	Yes	00086627 & 00086628	No
- Crop Group #10 - Tree Nuts[34]				
° Crop 1 - Almonds and almond hulls[33]				
-- Crop field trials	TEP			
- Crop Group #11 - Cereal Grains[35]				
° Crop 1 - Corn (fresh market, sweet)				
-- Crop field trials	TEP	Partially	00041736, 00039158, & 00087329	Yes[36]
-- Processed Food/Feed	TEP	No		No[37]
° Crop 2 - Rice[33]				
-- Crop field trials	TEP			
-- Processed Food/Feed	TEP			

TABLE A
GENERIC DATA REQUIREMENTS FOR CHLOROTHALONIL

Data Requirements	Composition 1/	Does EPA Have Data To Satisfy This Requirement? (Yes, No, or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)? 2/
§158.125 Residue Chemistry (continued)				
171-4 - Magnitude of the Residue-Residue Studies for Each Food Use				
Crop Group #8 (continued)				
° Crop 2 - Oranges 33/				
-- Crop field trials	TEP			
-- Processed Food/Feed	TEP			
- Crop Group #9 - Stone Fruits				
° Crop 1 - Apricots				
-- Crop field trials	TEP	Yes	00086627	No
° Crop 2 - Cherries (sweet and sour)				
-- Crop field trials	TEP	Yes	00087292, 00086627,	No
° Crop 3 - Nectarines				
-- Crop field trials	TEP	Yes	00086627 & 00086628	No
° Crop 4 - Peaches				
-- Crop field trials	TEP	Yes	00087292, 00086627 00086628, 00087363, 00087365 & 00040548	No

TABLE A
GENERIC DATA REQUIREMENTS FOR CHLOROTHALONIL

Data Requirements	Composition[1]	Does EPA Have Data To Satisfy This Requirement? (Yes, No, or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?[2]
§158.125 Residue Chemistry (continued)				
171-4 - Magnitude of the Residue-Residue Studies for Each Food Use				
- Crop Group #7 - Cucurbit Vegetables[27]				
° Crop 1 - Cucumbers				
-- Crop field trials	TEP	Partially	00087325, 00087250, 00087255, & 00087287	Yes[28]
° Crop 2 - Melons				
--Crop field trials	TEP	Partially	00087325, 00087250, 00087255, & 00087287	Yes[29]
° Crop 3 - Pumpkins				
-- Crop field trials	TEP	Partially	00087325	Yes[31]
° Crop 4 - Squash (summer & Winter)				
-- Crop field trials	TEP	Partially[32]	00087325	Yes[31]
- Crop Group #8 - Citrus Fruits (Citrus spp., Fortunella spp.)				
° Crop 1 - Grapefruit[33]				
-- Crop field trials	TEP			
-- Processed Food/Feed	TEP			

TABLE A
GENERIC DATA REQUIREMENTS FOR CHLOROTHALONIL

Data Requirements	Composition[1]	Does EPA Have Data To Satisfy This Requirement? (Yes, No, or Partially)	Bibliographic Citation	Must Additional Data be Submitted Under FIFRA Section 3(c)(2)(B)?[2]
§158.125 Residue Chemistry (continued)				
171-4 - Magnitude of the Residue-Residue Studies for Each Food Use				
- Crop Group # 11 (continued)				
° Crop 3 - Wheat[33]				
-- Crop field trials	TEP			
-- Processed Food/Feed	TEP			
- Miscellaneous Crops				
° Crop 1 - Bananas				
-- Crop field trials	TEP	Partially	00087275	Yes[38]
° Crop 2 - Cocoa Beans[33]				
-- Crop field trials	TEP			
° Crop 3 - Coffee Beans[33]				
-- Crop field trials	TEP			
° Crop 4 - Mint Hay				
-- Crop field trials	TEP	Partially	00071751, 00071753, & 00071754	Yes[39]
-- Processed Food/Feed	TEP	No		Yes[40]

TABLE A
GENERIC DATA REQUIREMENTS FOR CHLOROTHALONIL

Data Requirements	Composition [1]	Does EPA Have Data To Satisfy This Requirement? (Yes, No, or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)? [2]
§158.125 Residue Chemistry (continued)				
171-4 - Magnitude of the Residue-Residue Studies for Each Food Use				
-- Miscellaneous Crops (continued				
° Crop 5 - Papaya				
-- Crop field trials	TEP	Partially	00041736, 00039158, 00087368 & 00087329	Yes [39]
-- Processed Food/Feed	TEP	No		Yes [41]
° Crop 6 - Passion Fruit				
-- Crop field trials	TEP	Partially	00087353	Yes [42]
-- Processed Food/Feed	TEP	No		Yes [43]
° Crop 7 - Peanuts				
-- Crop field trials	TEP	Partially	00087327, 00087250, 00087255, & 00087287	Yes [44]
-- Processed Food/Feed	TEP	No		Yes [44]
°Crop 8 - Cottonseed				
-- Crop field trials	TEP	No		Yes [47]
-- Processed Food/Feed	TEP	No		Yes [47]

TABLE A
GENERIC DATA REQUIREMENTS FOR CHLOROTHALONIL

Data Requirement	Composition 1/	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)? 2/
§158.125 Residue Chemistry (continued)				
171-4 - Magnitude of the Residue-Residue Studies for Each Food Use				
- Potable Water	TEP	Not Applicable		
- Fish	TEP	Not Applicable		
- Irrigated Crops	TEP	Not Applicable		
-- Field trials	TEP	Not Applicable		
-- Processed Food/Feed	TEP	See Individual Commodities		
- Food Handling	TEP	Not Applicable		
- Meat/milk/poultry/eggs	TGAI or plant metabolites	Partially	00087251, 00087252, 00087253, & 00087677	Yes 45/

1/ Composition: TGAI = Technical grade of the active ingredient; PAIRA = Pure active ingredient, radiolabelled; TEP = Typical end-use product; EP = End-use product.

2/ Data must be submitted no later than 15 months from the date of this Standard.

3/ The following additional data are required:

- ° Studies in which the unidentified water-soluble compounds which constitute the major portion of the $[^{14}C]$ chlorothalonil residues taken up from treated soil by plants, are characterized along with other possible metabolites of chlorothalonil.
- ° Translocation studies involving the application of ring-labeled $[^{14}C]$chlorothalonil to foliar plants surfaces (one such study was submitted but involved immature plants). Data to determine whether the impurities in technical chlorothalonil need to be included in the tolerance expression.

TABLE A
GENERIC DATA REQUIREMENTS FOR CHLOROTHALONIL

§158.125 Residue Chemistry
(continued)

4/ The following additional data are required:
- Studies which elucidate the metabolism, distribution and accumulation of $[^{14}C]$chlorothalonil and of $[^{14}C]$DAC-3701 in poultry and ruminants, including eggs and milk, respectively. A non-ruminant (swine) metabolism study may be required if the ruminant metabolism study is found to differ significantly from that of the rat. Also, if the required plant metabolism data indicate that additional metabolites are residues of concern, additional animal metabolism studies utilizing these metabolites may be necessary. Data are also required for the determination whether the impurities in technical chlorothalonil need to be included in the meat, milk, and poultry meat and egg tolerances.

5/ No tolerances have yet been established for chlorothalonil residues in animal products.

6/ A crop group tolerance is not appropriate at the present time for the following reasons:
- Residue data are required for two additional representative members of this group (radishes and sugarbeets); chlorothalonil formulations are currently registered for use on carrots, potatoes and parsnips only.
- Additional data are required to support the currently established tolerances for members of this group.

7/ The following additional data are required:
- Residue data (for chlorothalonil and its 4-hydroxy metabolite) involving 10 aerial and ground applications of the 4.17 lb/gal FlC or 75% WP at 1.5 lb ai/A.
- Data are required indicating the presence and extent of the residues of HCB and PCBN which may result from the maximum recommended use.

8/ The following data are required:
- Residue data should be submitted indicating whether residues of chlorothalonil and it 4-hydroxy metabolite concentrate in processed potato products (i.e. fried potatoes, potato granules and potato chips).

9/ The following data are required:
- Residue data involving four applications of the 4.17 lb/gal FlC formulation at 1.5 lb ai/A and a PHI of 10 days if parsnips is, indeed, an active registered site. If the tolerance is to remain in effect, parsnips must appear on the labels involved.
- Data are required indicating the presence and extent of the residues of HCB and PCBN which may result from the maximum recommended use.

10/ The following additional data are required:
- Residue data (including both chlorothalonil and its 4-hydroxy metabolite) involving application of the 75%WP or 4.17 lb/gal FlC at 1.13 lb ai/A at intervals of 7 days from major growing regions in the western U.S. (CA, CO, ID and OR or WA).
- Data are required indicating the presence and extent of the residues of HCB and PCBN which may result from the maximum recommended use.

11/ A crop group tolerance is not appropriate at the present time for the following reasons:
- Data gaps must be satisfied for green and dry bulb onions.
- Residue data are required for one additional member of this group (garlic, leek or shallot).

TABLE A
GENERIC DATA REQUIREMENTS FOR CHLOROTHALONIL

§158.125 Residue Chemistry
(continued)

12/ The following additional data are required:
- Analysis of dry bulb onions for residues of chlorothalonil and its 4-hydroxy metabolite after the last of 12 weekly applications of the 75%WP or 4.17 lb/gal FlC formulation at 2.25 lb ai/A. Tests must be conducted with adequate geographic representation.
- Data indicating the presence and extent of the residues of HCB and PCBN which may result from the maximum recommended use.

13/ The following additional data are required:
- Residues of chlorothalonil and its 4-hydroxy metabolite in or on green onions (grown in CA and TX) following the last of eight weekly foliar applications of the 75%WP and 4.17 lb/gal FlC at 2.25 lb ai/A.
- Data indicating the presence and the extent of the residues of HCB and PCBN which may result from the maximum recommended use.

14/ A group tolerance is not appropriate at the present time for the following reasons:
- Data on residue levels of the metabolite DAC-3701 (4-hydroxy-2,5,6-trichloronitrile) were not submitted for the representative commodity, celery.
- Residue data are required for two additional members of this crop group (lettuce and spinach).

15/ The following additional data are required:
- Residue data for celery representing 16 weekly foliar applications of both the 75%WP and the 4.17 lb/gal FlC formulations at 2.25 lb ai/A. Data must include residues of the parent compound and metabolite DAC-3701. Tests must be conducted in CA, FL and MI which produce 46, 26 and 7% of the national celery crop, respectively (Agricultural Statistics, USDA, 1981, p. 169). The data indicate that the tolerance or PHI must be increased, however, we will reserve judgement on this matter until the requested data are received.
- Data are required indicating the presence and the extent of the residues of HCB and PCBN which may result from the maximum recommended use.

16/ A group tolerance is not appropriate at the present time for the following reasons:
- Residue data are required for one additional member of this crop group (mustard greens).
- Additional data are required to support the currently established tolerances for chlorothalonil residues in or on broccoli, brussels sprouts, cabbage and cauliflower.

17/ The following additional data are required:
- Residue data for chlorothalonil and DAC-3701 from broccoli receiving eight applications of the 4.17 lb/gal FlC at a rate of 1.17 lb ai/A in CA.
- Data indicating the presence and the extent of residues of HCB and PCBN which may result from the maximum recommended use.

TABLE A
GENERIC DATA REQUIREMENTS FOR CHLOROTHALONIL

§158.125 Residue Chemistry
(continued)

18/ The following additional data are required:
  - Tests conducted in CA employing 13 weekly applications of the 4.17 lb/gal FlC at 1.17 lb and the 75%WP formulation at 1.5 lb ai/A using aerial or ground equipment. Residues of both chlorothalonil and its 4-hydroxy metabolite must be determined.
  - Data indicating the presence and the extent of the residues of HCB and PCBN which may result from the maximum recommended use.

19/ The following additional data are required:
  - Residue data for chlorothalonil and DAC-3701 following 11 weekly applications of the 4.17 lb/gal FlC formulation at 1.17 lb ai/A in FL and NY using aerial and ground equipment.
  - Data are required indicating the presence and the extent of residues of HCB and PCBN which may result from the maximum recommended use.

20/ The following additional data are required:
  - Residue data for chlorothalonil and DAC-3701 following eight weekly applications of the 4.17 lb/gal FlC at 1.17 lb ai/A in NY and OR using aerial and ground equipment.
  - Data are required indicating the presence and the extent of the residues of HCB and PCBN which may result from the maximum recommended use.

21/ A crop group tolerance is not appropriate at the present time for the following reasons:
  - Residue data are required for one additional member of this crop group [peas (one succulent and one dried)]; chlorothalonil formulations are currently registered for use only on snap beans, dry beans and soybeans.
  - The tolerance for snap beans (5 ppm) is more than five times greater than the tolerance for dry beans (0.1 ppm) and soybeans (0.2 ppm), also the established PHIs for soybeans and dry beans (six weeks) is substantially greater than the PHI for snap beans (seven days).
  - Gaps in the residue data to support the currently established tolerances for snap beans and soybeans must be filled.

22/ Data are required indicating the presence and the extent of the residues of HCB and PCBN which may result from the maximum recommended use.

23/ The following additional data are required:
  - Foliar treatments of the 4.17 lb/gal FlC and 75%WP formulations at 2.22 and 2.25 lb ai/A, respectively; applications should be made at early bloom and repeated at 7-day intervals thereafter until 7 days prior to harvest. Samples should be analyzed for residues of both chlorothalonil and its 4-hydroxy metabolite.
  - Data are required indicating the presence and the extent of the residues of HCB and PCBN which may result from the maximum recommended use.

TABLE A
GENERIC DATA REQUIREMENTS FOR CHLOROTHALONIL

§158.125 Residue Chemistry
(continued)

24/ The following additional data are required:
- Processing studies to determine residues of chlorothalonil and DAC-3701 in or on meal, soapstock and crude and refined oil; soybean samples to be processed should consist of approximately 3% field trasn (by weight) and should contain tolerance level residues. These data should also indicate whether or not residues of HCB and PCBN will concentrate in the processed commodities.

25/ A crop group tolerance is not appropriate at the present time for the following reasons:
- Residue data are required for one additional representative member of this group (peppers); chlorothalonil formulations are currently registered for use on tomatoes only.
- Additional data are required to support the currently established tolerances for tomatoes.

26/ The following additional data are required:
- Residue data from field tests conducted on whole tomatoes from southern growing regions such as FL using the 4.17 lb/gal FlC at 2.22 lb ai/A applied 10 times at 7-day intervals (for an average 70-day planting-to-harvest period).
- Residue data from greenhouse tests involving weekly applications of the 20% Impr formulation at 0.7 oz. ai/1000 sq.ft beginning before disease develops and continuing during favorable conditions for disease.
- Data are required indicating the presence and the extent of the residues of HCB and PCBN which may result from the maximum recommended use.

27/ A crop group tolerance is not appropriate at the present time for the following reason:
- Gaps in the residue data to support the currently established tolerances for cucumbers, melons and summer squash must be filled.

28/ The following additional data are required:
- Multiple foliar applications with the 4.17 lb/gal FlC at 2.22 lb ai/A made at the first leaf stage and at eight weekly intervals thereafter and a single application at 6.26 lb ai/A during vine formation at test sites (including irrigated sites) in Fl (39%), SC (14%), CA (14%) and TX (13%) using ground and aerial equipment; contribution of each state to total domestic cucumber production is given parenthetically. Samples should be collected on the last day of treatment (or 40 days posttreatment at 6.26 lb ai/A) and residues of chlorothalonil and it metabolite (DAC-3701) in or on whole cucumbers determined.
- Data are required indicating the presence and the extent of the residues of HCB and PCBN which may result from the maximum recommended use.

29/ The following additional data are required:
- Multiple foliar applications with the 4.17 lb/gal FlC at 2.25 lb ai/A made at the first leaf stage and at 10 weekly intervals thereafter at irrigated and non-irrigated test sites in CA and TX. Samples should be collected on the last day of treatment and residues of chlorothalonil and its metabolite (DAC-3701) in or on whole melons determined.
- Data are required indicating the presence and the extent of the residues of HCB and PCBN which may result from the maximum recommended use.

TABLE A
GENERIC DATA REQUIREMENTS FOR CHLOROTHALONIL

§158.125 Residue Chemistry
(continued)

30/ Data requested for squash will be translated to pumpkins.

31/ The following additional data are required:
- ° Multiple foliar applications of the 75%WP and the 4.17 lb/gal FlC formulations at 2.25 lb ai/A made at the first leaf stage and at 10 weekly intervals thereafter at sites in FL, and irrigated sites in CA and TX. Samples should be collected on the last day of treatment and residues of chlorothalonil and it metabolite (DAC-3701) determined in or on squash (summer & winter).
- ° Data are required indicating the presence and the extent of the residues of HCB and PCBN which may result from the maximum recommended use.

32/ A crop group tolerance is not appropriate at the present time for the following reason:
- ° Tolerances for chlorothalonil residues have not heretofor been established for any group member. The available residue data for grapefruit, lemons, limes and oranges are currently under review pursuant to proposed tolerances for grapefruit and oranges.

33/ Data in support of the proposed tolerance are currently under review.

34/ A crop group tolerance is not appropriate at the present time for the following reason:
- ° Tolerances for chlorothalonil residues have not heretofor been established for any group member. Data in support of proposed tolerances covering almonds and almond hulls have been submitted and are currently under review.

35/ A crop group tolerance is not appropriate at the present time for the following reasons:
- ° Residue data are required for dried field corn and three additional members of this group (rice, sorghum and wheat). Note that available residue data for rice and wheat are currently under review pursuant to proposed tolerances for chlorothalonil residues now pending for these commodities.
- ° Gaps in the residue data to support the currently established tolerance for sweet corn (fresh market) must be filled.

36/ The following additional data are required:
- ° Multiple foliar applications of the 4.17 lb/gal FlC and the 75%WP at 1.5 lb ai/A beginning just prior to silking and at eight weekly intervals thereafter using ground and aerial equipment. Test sites should include the following states (contribution to U.S. corn production given parenthetically): IA (14%) or IL (14%), IN (7%) or OH (5%), GA or NC (2% each), and PA or NY (2% each). Samples should reflect the 14-day PHI; residues of chlorothalonil and its metabolite (DAC-3701) in or on fresh corn must be determined.
- ° Data are required indicating the presence and the extent of the residues of HCB & PCBN which may result from the maximum recommended use.

37/ Use of chlorothalonil is restricted to corn grown for fresh market only, a processing study to determine residues in cannery waste will not be required.

TABLE A
GENERIC DATA REQUIREMENTS FOR CHLOROTHALONIL

§158.125 Residue Chemistry
(continued)

38/ The following additional data are required:
- Residue data for no less than 10 aerial applications at 10-day intervals of either the 75%WP or the 6%FlC formulation at 1.5 lb ai/A from tests conducted in either Costa Rica or Equador and in one of the following locations: Columbia, Guatemala, Nicaragua, Mexico or the Dominican Republic. Alternatively, the registrant may propose a label amendment to restrict use of chlorothalonil on bananas to Honduras.
- Data are required indicating the presence and the extent of the residues of HCB and PCBN which may result from the maximum recommended use.

39/ Data are required indicating the presence and the extent of the residues of HCB and PCBN which may result from the maximum recommended use.

40/ If finite residues occur in mint hay, data defining whether or not HCB and PCBN residues concentrate in mint oil should be submitted. Similarly, the transfer of HCB and PCBN residues to meat and milk from the feeding of spent mint hay should be investigated. It should be noted that the label restriction against feeding of extracted mint hay to livestock is inappropriate; spent hay is not under the control of the grower and therefore not subject to label restrictions against feeding.

41/ The transfer of residues of HCB and PCBN to meat and milk from the feeding of processed papaya by-products should be investigated. It should be noted that the label restriction against feeding of processed papaya by-products to livestock is inappropriate; these by-products are not under the control of the grower and therefore not subject to label restrictions against feeding.

42/ The following additional data are required:
- Foliar treatments of the 4.17 lb/gal FlC at 1.43 lb ai/A starting in April and continuing at 14-day intervals until harvest; a minimum of six treatments must be applied. Fruit should be harvested for residue analysis on the day of the final application. Alternatively, a documented pulp to peel fresh weight ratio may be submitted; this would allow calculation of whole fruit residues from the existing data for pulp and peel.
- Data are required indicating the presence and the extent of the residues of HCB and PCBN which may result from the maximum recommended use.

43/ If residues of HCB and PCBN do occur in passion fruit, the transfer of residues of HCB and PCBN to meat and milk from the feeding of processing by-products should be investigated. It should be noted that the label restriction against feeding of processing by-products to livestock is inappropriate; these by-products are not under the control of the grower and therefore not subject to label restrictions against feeding.

§158.125 Residue Chemistry
(continued)

44/ The following additional data are required:

- ° Residue data for ground and aerially applied foliar treatments of the 4.17 lb/gal FL C formulation at 1.13 lb ai/A; no less than nine consecutive treatments should be applied at 10 day intervals until 14 days prior to harvest. Chlorothalonil and its 4-hydroxy metabolite must be determined in the hulls as well as nutmeats.
- ° Data are required indicating the presence and the extent of the residues of HCB and PCBN which may result from the maximum recommended use in the r.a.c. as well as the processed commodities.
- ° Residue data from meal, crude and refined oil, and soapstock processed from field treated peanuts having approximately tolerance level residues.

45/ The available plant and animal metabolism data are inadequate. Additional data elucidating the distribution and accumulation of chlorothalonil and its 4-hydroxy metabolite in plants and food animals are required. In the event toxic metabolites other than those mentioned above are identified, additional feeding studies using such metabolites may be required.

46/ Tolerances have not been established for chlorothalonil residues in or on meat, milk, poultry and eggs. These data are under review.

47/ In the past seed treatments have been considered non-food uses and the submission of residue data for these uses were not required. Based on current policies, seed treatments are considered food uses and metabolism and residue chemistry data are required to suport a non-food classification. Since chlorothalonil is translocated and absorbed from the soil, we are requiring residue chemistry data for cottonseed, cotton forage and cotton hay reflecting the maximum registered amount of chlorothalonil used on the cottonseed. If real residues occur in the cottonseed grown from the treated seed, then data for cotton seed byproducts (oil, meal, and soapstock) must be submitted. An appropriate tolerance must be established, adequate to cover the residues occurring in the cottonseed commodities.

TABLE A
GENERIC DATA REQUIREMENTS FOR CHLOROTHALONIL

Data Requirement	Composition[1]	Use Pattern[2]	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?[3]
§158.130 Environmental Fate					
DEGRADATION STUDIES-LAB:					
161-1 - Hydrolysis	TGAI or PAIRA	A,B,E,F,H	Partially	00040539	Yes[4]
Photodegradation					
161-2 - In water	TGAI or PAIRA	A,B	No		Yes
161-3 - On soil	TGAI or PAIRA	A	No		Yes
161-4 - In Air	TGAI or PAIRA	A	No		Yes
METABOLISM STUDIES-LAB:					
162-1 - Aerobic Soil	TGAI or PAIRA	A,B,E,F,H	Yes	00029407[5] or 00087351	No
162-2 - Anaerobic Soil	TGAI or PAIRA	A	No		Yes
162-3 - Anaerobic Aquatic	TGAI or PAIRA				
162-4 - Aerobic Aquatic	TGAI or PAIRA				
MOBILITY STUDIES:					
163-1 - Leaching and Adsorption/Desorption	TGAI or PAIRA	A,B,E,F,H	Partially	00040543 or 00115105	Yes[6]
163-2 - Volatility (Lab)	TEP	A,E,F	No		Yes
163-3 - Volatility (Field)	TEP	A,E,F	No		Yes

TABLE A
GENERIC DATA REQUIREMENTS FOR CHLOROTHALONIL

Data Requirement	Composition[1]	Use Pattern[2]	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?[3]
§158.130 Environmental Fate (continued)					
DISSIPATION STUDIES-FIELD:					
164-1 - Soil	TEP	A,B,H	Partially	00087296	Yes[7]
164-2 - Aquatic (Sediment)	TEP				
164-3 - Forestry	TEP				
164-4 - Combination and Tank Mixes					
164-5 - Soil, Long-term	TEP	A	No		Reserved[8]
ACCUMULATION STUDIES:					
165-1 - Rotational Crops (Confined)	PAIRA	A	Yes	00029409	No
165-2 - Rotational Crops (Field)	TEP	A	Partially	GS0097003	Yes[9]
165-3 - Irrigated Crops	TEP				
165-4 - In Fish	TGAI or PAIRA	A,B	Yes	00086629, 00029411, and 00086630	No[10]
165-5 - In Aquatic Non-Target Organisms	TEP				

TABLE A
GENERIC DATA REQUIREMENTS FOR CHLOROTHALONIL

§158.130 Environmental Fate
(continued)

1/ Composition: TGAI = Technical grade of the active ingredient; PAIRA = Pure active ingredient, radiolabelled; TEP = Typical end-use product.

2/ The use patterns are coded as follows: A=Terrestrial, Food Crop; B=Terrestrial, Non-Food; C=Aquatic, Food Crop; D=Aquatic, Non-Food; E=Greenhouse, Food Crop; F=Greenhouse, Non-Food; G=Forestry; H=Domestic Outdoor; I=Indoor.

3/ Data must be submitted no later than 15 months, except chemical/physical, degradation, and mobility studies must be submitted within 6 months.

4/ Study (00040539) partially fulfills data requirements by providing information on the hydrolysis of chlorothalonil and its 4-hydroxy degradate in aqueous buffer solutions (pH 5,7,and 9) and by identifying 3-cyano-2,4,5,6-tetrachlorobenzamide (CTCBN) as hydrolysis products at pH 9. At pH 9, CTCBN was shown to be formed in greater amounts than the 4-hydroxy metabolite. However, no data were provided on the decline of CTCBN in water. A study is needed demonstrating the decline of CTCBN in water.

5/ This study (00029407) adequately identifies the degradates of chlorothalonil. However, the rate of degradation and a material balance were not determined.

6/ To fully satisfy the mobility data requirements, a study is needed providing data on the mobility of chlorothalonil and the 4-hydroxy degradate age individually in a sandy loam soil for 30 days using appropriate laboratory conditions, soil sampling protocols, and analyses. This will satisfy the mobility data requirements for the Terestrial Food Crop and Non-Food use patterns. A batch equilibrium (adsorption/desorption) study is required to satisfy the mobility data requirements for the Greenhouse, Food and Non-Food and Domestic Outdoor use patterns.

7/ Additional studies are need providing terrestrial field dissipation data for chlorothalonil at one additional site for the WP formulations, utilizing the highest rate recommended and the greatest number of multiple applications, and at two additional sites for the D, P/T, Impr and FlC formulations.

8/ The data requirements for the long term field dissipation studies will be based on the results of the field dissipation studies utilizing the highest rate recommended and the greatest number of multiple applications.

9/ The results of this studies indicate the presence of chlorothalonil and its degradates in soil and crops (except leafy vegetables) at least one year ofter treatment, additional data are needed to determine accumulation of the manufacturing impurities, hexachlorobenzene and pentachlorobenzonitrile, in rotated crops.

10/ Although, the valid fish accumulation study was not conducted at a pH at which chlorothalonil is stable in water (stable at pH 5 and 7, unstable at pH 8, the pH at which the study was conducted), the study provided sufficient fish accumulation data to waive further accumulation data requirements until the octanol/water partition corfficient data becomes available.

TABLE A
GENERIC DATA REQUIREMENTS FOR CHLOROTHALONIL

Data Requirement	Composition 1/	Use Patterns 2/	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)? 3/
§158.135 Toxicology					
ACUTE TESTING:					
81-1 - Oral LD_{50} - Rat	TGAI	ABCDEFGHI	Yes	00094941	No
81-2 - Dermal LD_{50}	TGAI	ABCDEFGHI	Yes	00094940	No
81-3 - Inhalation LC_{50} - Rat	TGAI	ABCDEFGHI	Yes	00094942	No
81-7 - Acute Delayed Neurotoxicity - Hen	TGAI	Not Applicable			
SUBCHRONIC TESTING:					
82-1 - 90-Day Feeding - Rodent, Non-rodent	TGAI	ACE	Yes	00087316 or 00087360 & 00087375	No
82-2 - 21-Day Dermal	TGAI	H	No		Yes
82-3 - 90-Day Dermal	TGAI	Not Applicable			
82-4 - 90-Day Inhalation - Rat	TGAI	Not Applicable			
82-5 - 90-Day Neurotoxicity-Hen/Mammal	TGAI	Not Applicable			

TABLE A
GENERIC DATA REQUIREMENTS FOR CHLOROTHALONIL

Data Requirement	Composition 1/	Use Pattern 2/	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)?	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)? 2/
§158.135 Toxicology (continued)					
CHRONIC TESTING:					
83-1 - Chronic Toxicity - 2 species: Rodent	TGAI	ACE	Yes	00047945 & 00035559	No
and Non-rodent	TGAI	ACE	Yes	00087375 & 00030292	No
83-2 - Oncogenicity Study - 2 species: Rat and Mouse preferred	TGAI	ACE	Partially	00127858 0127849 4/ & 00047945 4/	Yes 3/
83-3 - Teratogenicity -	TGAI	ACE	Yes	00047944 & 00127855	Yes 5/
83-4 - Reproduction, 3-generation	TGAI	ACE	Yes	00038913 & 00087283	No
MUTAGENICITY TESTING					
84-2 - Gene Mutation	TGAI	ACE	Yes	00052946, 00030289, 00030290, 00030291, & 00073563	No
84-2 - Chromosomal Aberration	TGAI	ACE	Yes	00040464, 00030287, 00127853, & 00127854	No
84-2 - Other Mechanisms of Mutagenicity	TGAI	ACE	Yes	00052945	No

TABLE A
GENERIC DATA REQUIREMENTS FOR CHLOROTHALONIL

Data Requirement	Composition 1/	Use Pattern 2/	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?3/
§158.135 Toxicology (continued)					
SPECIAL TESTING					
85-1 - General Metabolism	PAI or PAIRA	ACE	Partially	GS0097002	Yes
85-2 - Domestic Animal Safety	Choice		No	No	No

1/ Composition: PAI = Pure active ingredient; PAIRA = Pure active ingredient, radiolabelled; Choice = Choice of several test substances determined on a case-by-case basis.

2/ The use patterns are coded as follows: A=Terrestrial, Food Crop; B=Terrestrial, Non-Food; C=Aqautic, Food Crop; D=Aquatic, Non-Food; E=Greenhouse, Food Crop; F=Greenhouse, Non-Food; G=Forestry; H=Domestic Outdoor; I=Indoor.

3/ The mouse oncogenicity study has been submitted. The rat oncogenicity study is underway and must be submitted, along with the other required toxicology data, no later than July, 1985.

4/ Test material was DS-3701, the primary metabolite of chlorothalonil.

5/ Individual animal data for the offspring must be submitted for the rabbit teratology study.

TABLE A
GENERIC DATA REQUIREMENTS FOR CHLOROTHALONIL

Data Requirement	Composition 1/	Pattern 2/	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)? 3/
§158.140 Reentry Protection					
132-1 - Foliar Dissipation	TEP	A,B	No		Yes
132-1 - Soil Dissipation	TEP	A,B	No		Yes
133-3 - Dermal Exposure	TEP	A,B	No		Yes
133-4 - Inhalation Exposure	TEP		Not Applicable		

1/ Composition: TEP = Typical end-use product.

2/ The use patterns are coded as follows: A=Terrestrial, Food Crop; B=Terrestrial, Non-Food; C=Aquatic, Food Crop; D=Aquatic, Non-Food; E=Greenhouse, Food Crop; F=Greenhouse, Non-Food; G=Forestry; H=Domestic Outdoor; I=Indoor.

3/ Data must be submitted no later than 15 months from the date of this standard.

TABLE A

GENERIC DATA REQUIREMENTS FOR CHLOROTHALONIL

Data Requirement	Composition 1/	Use Pattern 2/	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)? 3/
§158.145 Wildlife and Aquatic Organisms					
AVIAN AND MAMMALIAN TESTING					
71-1 - Avian Oral LD_{50}	TGAI	A,B,D,E,F,H,I	Yes	00068753*, & 00030395** 4/	No
71-2 - Avian Dietary LC_{50}	TGAI	A,B,D 5/, E 5/, F 5/, H 5/, I 5/	Yes	00030389*, 00030388*, & 00039146* 00115108** 4/ & 00115109** 4/	No
71-3 - Wild Mammal Toxicity	TGAI	A,B,D,H	No		No 6/
71-4 - Avian Reproduction	TGAI	A,B,D,H	Partially	00041441* & 00041440*	Yes 7/
71-5 - Simulated and Actual Field Testing - Mammals and Birds	TEP	A,B,D,H	No		No
AQUATIC ORGANISM TESTING					
72-1 - Freshwater Fish LC_{50}	TGAI	A,B,D,E,F,H,I	Yes	00041439*,00030390*, 00029410*, or 00056486* 00030393** 4/ & 00029415** 4/ 00087303** 8/ & 00087258** 8/	No

TABLE A
GENERIC DATA REQUIREMENTS FOR CHLOROTHALONIL

Data Requirement	Composition 1/	Use Pattern 2/	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)? 3/
§158.145 Wildlife and Aquatic Organisms (continued)					
AQUATIC ORGANISM TESTING (continued)					
72-2 - Acute LC_{50} Freshwater Invertebrates	TGAI	A,B,D,E,F,H,I	Yes	00068754* & 00030394** 4/	No
72-3 - Acute LC_{50} Estuarine and Marine Organisms	TGAI	A,B,D,H	Partially	00127863* & 00127864*	Yes 9/
72-4 - Fish Early Life Stage and Aquatic Invertebrate Life-Cycle	TGAI	A,B,D,H	Partially	00030391* (fish) 00115107* (inv)	No 10/
72-5 - Fish - Life-Cycle	TGAI	A,B,D,H	No		No
72-6 - Aquatic Organism Accumulation	TGAI, PAI OR Degradation Product	A,B,D,H	No		No
72-7 - Simulated or Actual Field Testing - Aquatic Organisms	TEP	A,B,D,H	No		Yes

1/ Composition: TGAI = Technical grade of the active ingredient; PAI = pure active ingredient; TEP = Typical end-use product;

2/ The use patterns are coded as follows: A=Terrestrial, Food Crop; B=Terrestrial, Non-Food Crop; C=Aquatic, Food Crop; D=Aquatic, Non-Food; E=Greenhouse, Food Crop; F=Greenhouse, Non-Food; G=Forestry; H=Domestic Outdoor; I=Indoor.

*Study on its own fulfills a data requirement.

**Study must be combined with other studies to fulfill data requirements.

TABLE A
GENERIC DATA REQUIREMENTS FOR CHLOROTHALONIL

§158.145 Wildlife and Aquatic Organisms
(continued)

3/ Data must be submitted no later than 15 months from the date of this Standard.
4/ Test material was DS-3701, primary degradate of chlorothalonil.
5/ Only one species need be cited.
6/ Not normally required.
7/ Studies on the more toxic and persistent degradates are required to support all outdoor uses.
8/ Test material was 75% ai.
9/ The citrus and soybean uses must be supported by estuarine studies. An oyster study (either 48-hour embryo-larvae or 96-hour shell deposition) is outstanding.
10/ The citrus and soybean uses need not be supported by a chronic estuarine study. The marine fish embryo-larvae study is not needed because the LC_{50} of the sheepshead is similar to the fathead minnow LC_{50} and the MATC for the fathead minnow is available. The chronic study with a mysid shrimp is not considered necessary because the shrimp LC_{50} is much higher than the daphnia LC_{50} and the sheepshead minnow LC_{50}. A daphnia MATC is available and is expected to be lower than a shrimp MATC.

TABLE A
GENERIC DATA REQUIREMENTS FOR CHLOROTHALONIL

Data Requirements	Composition 1/	Use Pattern 2/	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)? 3/
§158.150 Plant Protection					
121-1 - TARGET AREA PHYTOTOXICITY	EP		No	-	No 4/
NONTARGET AREA PHYTOTOXICITY					
TIER I					
122-1 - Seed Germination/ Seedling Emergence	TGAI		No	-	No 4/
122-1 - Vegetative Vigor	TGAI		No	-	No 4/
122-2 - Aquatic Plant Growth	TGAI		No	-	No 4/
TIER II					
123-1 - Seed Germination/ Seedling Emergence	TGAI		No	-	No 4/
123-1 - Vegetative Vigor	TGAI		No	-	No 4/
123-2 - Aquatic Plant Growth	TGAI		No	-	No 4/
TIER III					
124-1 - Terrestrial Field	TEP		No	-	No 4/
124-2 - Aquatic Field	TEP		No	-	No 4/

1/ Composition: TGAI = Technical grade of the active ingredient; TEP = Typical end-use product. EP = End-use product.

2/ The use patterns are coded as follows: A=Terrestrial, Food Crop; B=Terrestrial, Non-Food Crop; C=Aquatic, Food Crop; D=Aquatic, Non-Food; E=Greenhouse, Food Crop; F=Greenhouse, Non-Food; G=Forestry; H=Domestic Outdoor; I=Indoor.

3/ Data not required.

4/ These requirements are generally waived unless it is believed there is a phytotoxicity problem

TABLE A
GENERIC DATA REQUIREMENTS FOR CHLOROTHALONIL

Data Requirement	Composition [1]	Use Pattern [2]	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)? [3]
§158.155 Nontarget Insect					
NONTARGET INSECT TESTING - POLLINATORS:					
141-1 - Honey bee acute contact LD_{50}	TGAI	A,B	Yes	00036935 & 00077759	No
141-2 - Honey bee - toxicity of residues on foliage	TEP	A,B	No		No [4]
141-3 - Wild bees important in alfalfa pollination - toxicity of residues on foliage	TEP	Not Applicable [5]			
141-4 - Honey bee subacute feeding study	(Reserved) [6]				
141-5 - Field testing for pollinators	TEP	A,B	No		No [4]

TABLE A

GENERIC DATA REQUIREMENTS FOR CHLOROTHALONIL

Data Requirement	Composition 1/	Use Pattern 2/	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)? 3/
§158.155 Nontarget Insect (continued)					
NONTARGET INSECT TESTING - AQUATIC INSECTS:					
142-1 - Acute toxicity to aquatic insects	(Reserved) 7/				
142-2 - Aquatic insect life-cycle study	(Reserved) 7/				
142-3 - Simulated or actual field testing for aquatic insects	(Reserved) 7/				
143-1 thru 143-3 - NONTARGET INSECT TESTING - PREDATORS AND PARASITES	(Reserved) 7/				

1/ Composition: TGAI = Technical grade of the active ingredient; TEP = Typical end-use product.

2/ The use patterns are coded as follows: A=Terrestrial, Food Crop; B=Terrestrial, Non-Food; C=Aquatic, Food Crop; D=Aquatic, Non-Food; E=Greenhouse, Food Crop; F=Greenhouse, Non-Food; G=Forestry; H=Domestic Outdoor; I=Indoor.

3/ See foot note number 4.

4/ As the acute contact LD_{50} test showed chlorothalonil to be non-toxic to honey bees, no further testing is required.

5/ Required only if pesticide is intended for foliar application to seed alfalfa.

6/ Reserved pending development of test methodology.

7/ Reserved pending Agency decision as to whether the data requirement should be established.

TABLE B
PRODUCT SPECIFIC DATA REQUIREMENTS FOR MANUFACTURING-USE PRODUCTS CONTAINING CHLOROTHALONIL

Data Requirement	Composition 1/	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)2/	Bibliographic Citation2/	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?2/
§158.120 Product Chemistry				
Product Identity				
61-1 - Identity of Ingredients	MP	See Foot Note 2	Not Applicable	Yes
61-2 - Statement of Composition	MP	See Foot Note 2	Not Applicable	Yes
61-3 - Discussion of Formation of Ingredients	MP	See Foot Note 2	Not Applicable	Yes
Analysis and Certification of Product Ingredients:				
62-1 - Preliminary Analysis	MP	See Foot Note 2	Not Applicable	Yes
62-2 - Certification of Limits	MP	See Foot Note 2	Not Applicable	Yes
62-3 - Analytical Methods for Enforcement of Limits	MP	See Foot Note 2	Not Applicable	Yes
Physical and Chemical Characteristics				
63-2 - Color	MP	See Foot Note 2	Not Applicable	Yes
63-3 - Physical State	MP	See Foot Note 2	Not Applicable	Yes
63-4 - Odor	MP	See Foot Note 2	Not Applicable	Yes
63-7 - Density, bulk density, or specific gravity	MP	See Foot Note 2	Not Applicable	Yes
63-12 - pH	MP	See Foot Note 2	Not Applicable	Yes

TABLE B

PRODUCT SPECIFIC DATA REQUIREMENTS FOR MANUFACTURING-USE PRODUCTS CONTAINING CHLOROTHALONIL

Data Requirement	Composition 1/	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)? 2/
§158.120 Product Chemistry (continued)				
Physical and Chemical Characteristics (continued)				
63-14 - Oxidizing or reducing action	MP	See Foot Note 2	Not Applicable	Yes
63-15 - Flammability	MP	See Foot Note 2	Not Applicable	Yes
63-16 - Explodability	MP	See Foot Note 2	Not Applicable	Yes
63-17 - Storage Stability	MP	See Foot Note 2	Not Applicable	Yes
63-18 - Viscosity	MP	See Foot Note 2	Not Applicable	Yes
63-19 - Miscibility	MP	No		No
Other Requirements:				
64- 1 - Submittal of Samples	Choice	See Foot Note 2		

1/ Composition: MP = Manufacturing-use product; Choice = Choice of several test substances determined on a case-by-case basis.

2/ Data must be submitted no later than 3 months from the date of this Standard. Each registrant must submit the above data for each Manufacturing-Use product to support continued registration.

TABLE B
PRODUCT SPECIFIC DATA REQUIREMENTS FOR MANUFACTURING-USE PRODUCTS CONTAINING CHLOROTHALONIL

Data Requirement	Composition 1/	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)? 2/
§158.135 Toxicology				
ACUTE TESTING				
81-1 - Oral LD_{50} - Rat	MP	Yes	00094941, 00094728, or 00030357	No
81-2 - Dermal LD_{50}	MP	Yes	00094940, 00094729, or 00030355	No
81-3 - Inhalation $LC_5{}^0$ - Rat	MP	Yes	00094942 or 00100787	No
81-4 - Primary Eye Irritation - Rabbit	MP	Yes	00094731,00030352, or 00030350	No
81-5 - Primary Dermal Irritation	MP	Yes	00094730	No
81-6 - Dermal Sensitization	MP	No		Yes

1/ Composition: MP = Manufacturing-use product.
2/ Data must be submitted no later than 6 months.

III. REQUIREMENT FOR SUBMISSION OF PRODUCT-SPECIFIC DATA

Note: This chapter applies only to manufacturing-use products, not end-use products.

A necessary first step in determining which statements must appear on your product's label is the completion and submission to EPA of product-specific data* listed on the form entitled "Product Specific Data Report" (EPA Form 8580-4, Appendix III-1) to fill "gaps" identified by EPA concerning your product. Under the authority of FIFRA Section 3(c)(2)(B), EPA has determined that you must submit these data to EPA in order to register or reregister your product(s). All of these data must be submitted not later than six months after you receive this guidance document.

"Product-Specific Data Requirements for Manufacturing-Use Products" appearing in Table B permit you to determine which product-specific data you must submit. This can be done by examining the entries in the column of those tables entitled "Must Data Be Submitted Under §3(c)(2)(B)."

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*/ Product specific data pertains to data that support the formulation which is marketed; it usually includes product chemistry data and acute toxicology data.

IV. SUBMISSION OF REVISED LABELING AND PACKAGING INFORMATION

Note: This chapter applies only to manufacturing-use products, not end-use products.

The Agency requires applicants for registration or reregistration to ensure that each label (1) contains accurate, complete, and sufficient instructions and precautions, reflecting the results of data concerning the product and its ingredients, and (2) incorporates labeling format and terminology which are sufficiently standardized to avoid user confusion.

As part of your application, you will be required to submit draft labeling consistent with: applicable product-specific data; the precautionary statements and use directions; and the regulations concerning classification [40 CFR §162.11(c)], packaging [40 CFR §162.16], and labeling [40 CFR §162.10, Appendix IV-1 an IV-2], as indicated by the following paragraphs of this chapter of the guidance document.

You will be informed later when you must submit the revised labeling set forth in this guidance package.

A. Label Contents

40 CFR §162.10 (Appendix IV-1) requires that certain specific labeling statements must appear at certain locations on the label. This is referred to as format labeling. Specific label items listed below are keyed to Tables D, E, and F (Appendix IV-2).

Item 1. PRODUCT NAME - The name, brand, or trademark is required to be located on the front panel, preferably centered in the upper part of the panel. The name of a product will not be accepted if it is false or misleading. See Appendix IV-1. [40 CFR §162.10(b)]

Item 2. COMPANY NAME AND ADDRESS - The name and address of the registrant or distributor is required on the label. The name and address should preferably be located at the bottom of the front panel or at the end of the label text. See Appendix IV-1. [40 CFR §162.10(c)]

Item 3. NET CONTENTS - A net content statement is required on all labels. The preferred location is the bottom of the front panel immediately above the company name and address, or at the end of the label text. The net contents must be stated in terms of weight, expressed as avoirdupois pounds and ounces, and stated in terms of the largest suitable unit, i.e., "1 pound 10 ounces" rather than "26 ounces." In addition to the required units specified, net contents may be expressed in metric units. See Appendix IV-1. [40 CFR §162.10(d)]

Item 4. EPA REGISTRATION NUMBER - The registration number assigned to the pesticide product must appear on the label, preceded by the phrase "EPA Registration No.," or "EPA Reg. No." The registration number must be set in type of a size and style similar to other print on that part of the label on which it appears and must run parallel to it. The registration number and the required identifying phrase must not appear in such a manner as to suggest or imply recommendation or endorsement of the product by the Agency. See Appendix IV-1. [40 CFR §162.10(e)]

Item 5. EPA ESTABLISHMENT NUMBER - The EPA establishment number, preceded by the phrase "EPA Est." is the final establishment at which the product was produced, and may appear in any suitable location on the label or immediate container. It must also appear on the wrapper or outside container of the package if the EPA establishment registration number on the immediate container cannot be clearly read through such wrapper or container. See Appendix IV-1. [40 CFR §162.10(f)]

Item 6. INGREDIENT STATEMENT - An ingredient statement is required on the front panel and must contain the name and percentage by weight of each active ingredient and the total percentage by weight of all inert ingredients. The preferred location is immediately below the product name. The ingredient statement must run parallel with, and be clearly distinguished from, other text on the panel. It must not be placed in the body of other text. See Appendix IV-1. [40 CFR 162.10(g)]

Item 6A. POUNDS PER GALLON STATEMENT - For liquid agricultural formulations, the pounds per gallon of active ingredient must be indicated on the label.

Item 7. FRONT LABEL PRECAUTIONARY STATEMENTS - All labels are required to have precautionary statements grouped together on the front panel, preferably within a block outline. The table below shows the minimum type size requirements on various size labels, as set forth in the Regulations.

Size of Label on Front Panel in Square Inches	Signal Word as Required Minimum Type Size All Capitals	"Keep Out of Reach of Children" as Required
5 and under	6 point	6 point
above 5 to 10	10 point	6 point
above 10 to 15	12 point	8 point
above 15 to 30	14 point	10 point
over 30	18 point	12 point

Item 7A. CHILD HAZARD WARNING STATEMENT - All labels are required to have the statement "Keep Out of Reach of Children" located on the front panel above the signal word except where contact with children during distribution or use is unlikely. See Appendix IV-1. [40 CFR §162.10(h)(1)(ii)]

Item 7B. SIGNAL WORD - The signal word (Caution, Warning, or Danger) is required on the front panel immediately below the child hazard warning statement. See Appendix IV-1. [40 CFR §162.10 (h)(1)(i)]

Item 7C. SKULL & CROSSBONES AND WORD "POISON" - On products assigned a toxicity Category I on the basis of oral, inhalation, or dermal toxicity, the word "Poison" shall appear on the label in red on a background of distinctly contrasting color and the skull and crossbones shall appear in immediate proximity to the word poison. See Appendix IV-1. [40 CFR §162.10(h)(1)(i)]

Item 7D. STATEMENT OF PRACTICAL TREATMENT - A statement of practical treatment (first aid or other) shall appear on the label of pesticide products in toxicity Categories I, II, and III. See Appendix IV-1. [40 CFR §162.10(h)(1)(iii)]

Item 7E. REFERRAL STATEMENT - The statement "See Side (or Back) Panel for Additional Precautionary Statements" is required on the front panel for all products, unless all required precautionary statements appear on the front panel. See Appendix IV-1. [40 CFR §162.10(h)(1)(iii)]

Item 8. SIDE/BACK PANEL PRECAUTIONARY LABELING - The precautionary statements as listed below must appear together on the label under the heading "PRECAUTIONARY STATEMENTS." The preferred location is at the top of the side or back panel preceding the directions for use, and it is preferred that these statements be surrounded by a block outline. Each of the three hazard warning statements must be headed by the appropriate hazard title See Appendix IV-1. [40 CFR §162.10 (h)(2)]

Item 8A. HAZARD TO HUMANS AND DOMESTIC ANIMALS - Where a hazard exists to humans or domestic animals, precautionary statements are required indicating the particular hazard, the route(s) of exposure and the precautions taken to avoid accident, injury or damage. See Appendix IV-1. [40 CFR §162.10 (h)(2)(i)]

Item 8B. ENVIRONMENTAL HAZARD - Where a hazard exists to non-target organisms excluding humans and domestic animals, precautionary statements are required stating the nature of the hazard and the appropriate precautions to avoid potential accident, injury, or damage. See Appendix IV-1. [40 CFR §162.10(h)(2)(ii)]

Item 8C. PHYSICAL OR CHEMICAL HAZARD

1. Flammability statement. Precautionary statements relating to flammability of a product are required to appear on the label if it meets the criteria in Appendix IV-3. The requirement is based on the results of the flashpoint determinations and flame extension tests required to be submitted for all products. These statements are to be located in the side/back panel precautionary statements section, preceded by the heading "Physical/Chemical Hazards." Note that no signal word is used in conjunction with the flammability statements.

2. Criteria for declaration of non-flammability. The following criteria will be used to determine if a product is non-flammable:

   a. A "non-flammable gas" is a gas (or mixture of gases) that will not ignite when a lighted match is placed against the open cylinder valve.

   b. A "non-flammable liquid" is one having a flashpoint greater than 350°F (177°C) as determined by the method specified in 40 CFR §163.61-8(c)(13)(ii) of Subpart D.

   c. A "non-flammable aerosol" is one which meets the following criteria:

      i. The flame extension is zero inches, using the method specified in 40 CFR §163.61-8(c)(13)(ii);

      ii. There is no flash back; and

      iii. The flashpoint of the non-volatile liquid component is greater than 350°F (177°C), determined by the method specified in 40 CFR §163.61-8(c)(13)(i).

3. Declaration of non-flammability. Products which meet the criteria for non-flammability specified above may bear the notation "non-flammable" or "nonflammable (gas, liquid, etc.)" on the label.

   It may appear as a substatement to the ingredients statement, or on a back or side panel, but shall not be highlighted or emphasized (as with an inordinately large type size) in any way that may detract from precaution.

4. Other physical/chemical hazard statements. When chemistry data submitted in accordance with 40 CFR §163.61-10(c) demonstrate hazards of a physical or chemical nature other than flammability, appropriate statements of hazard will be prescribed. Such statements may address hazards of explosivity, oxidizing or reducing capability, or mixing with other substances to produce toxic fumes.

Item 9. MISUSE STATEMENT - The following statement is required on your label: "It is a violation of Federal law to use this product in a manner inconsistent with its labeling." See Appendix IV-1. [40 CFR §162.10(1)(2)(ii)]

Item 10A. STORAGE AND DISPOSAL BLOCK - All labels are required to bear storage and disposal statements. These statements are developed for specific containers, sizes, and chemical content. Make certain that the statement you use pertains specifically to your product. These instructions must be grouped and appear under the heading "Storage and Disposal" in the directions for use. This heading must be set in the same type sizes as required for the child hazard warning. Refer to Appendix IV-5 for the latest specific storage and disposal product label statements.

Item 10B. DIRECTIONS FOR USE - Directions for use must be stated in terms which can be easily read and understood by the average person likely to use or to supervise the use of the pesticide. When followed, directions must be adequate to protect the public from fraud and from personal injury and to prevent unreasonable adverse effects on the environment. See Appendix IV-1. [40 CFR §162.10]

B. Collateral Information

Bulletins, leaflets, circulars, brochures, data sheets, flyers, and other graphic printed matter which is referred to on the label or which is to accompany the product are termed collateral labeling. Such labeling may not bear claims or representations that differ in substance from those accepted in connection with registration of the product. It should be made part of the response to this notice and submitted for review.

V. INSTRUCTIONS FOR SUBMISSION

All applications prepared in response to this Notice should be addressed as follows:

Henry M. Jacoby
Phone No (703) 557-1900
Registration Division (TS-767C)
Office of Pesticide Programs
Environment Protection Agency
Washington, D. C. 20460

For each product for which continued registration is desired:

1. Within 90 days from receipt of this document, you must submit the "FIFRA Section 3(c)(2)(B) Summary Sheet" EPA Form 8580-1. Refer to Appendix II-2 with appropriate attachments.

2. Within 6 months from receipt of this document registrants must submit:

   a. Confidential Statement of Formula, EPA Form 8570-4.

   b. Product Specific Data Report, EPA Form 8580-4 (Appendix III-1).

   c. Two copies of any required product-specific data.

3. Within the time set forth in Table A, all generic data must be submitted by the affected registrant(s).

Note: If for any reason any require test is delayed or aborted so that meeting the agreed submission time will be delayed, notify the Product Manager listed above.

You will be informed at a later date when you must submit your Application for Amended Pesticide Registration (EPA Form 8570-1) and the revised labeling set forth in this guidance package.

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00029409 Szalkowski, M.B.; Stallard, D.E.; Bachand, R.T., Jr. (1979) Absorption and Translocation of 2,4,5,6-Tetrachloroisophthalonitrile (chlorothalonil) Metabolites in Soil by Leafy, Root and Fruiting Crops--A Laboratory Rotational Crop Study: Research Report R-78-0020. (Unpublished study received Feb 19, 1980 under 677-313; Diamond Shamrock Agricultural Chemicals, Cleveland, Ohio; CDL: 099248-G)

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APPENDIX II-2

OMB Approval No. 2000-0468 (Expires 12-31-83)

FIFRA SECTION 3(C)(2)(B) SUMMARY SHEET	EPA REGISTRATION NO.
PRODUCT NAME	
APPLICANT'S NAME	DATE GUIDANCE DOCUMENT ISSUED

With respect to the requirement to submit "generic" data imposed by the FIFRA section 3(C)(2)(B) notice contained in the referenced Guidance Document, I am responding in the following manner:

☐ 1. I will submit data in a timely manner to satisfy the following requirements. If the test procedures I will use deviate from (or are not specified in) the Registration Guidelines or the Protocols contained in the Reports of Expert Groups to the Chemicals Group, OECD Chemicals Testing Programme, I enclose the protocols that I will use:

☐ 2. I have entered into an agreement with one or more other registrants under FIFRA section 3(C)(2)(B)(ii) to satisfy the following data requirements. The tests, and any required protocols, will be submitted to EPA by:

NAME OF OTHER REGISTRANT

☐ 3. I enclose a completed "Certification of Attempt to Enter Into an Agreement with Other Registrants for Development of Data" with respect to the following data requirements:

☐ 4. I request that you amend my registration by deleting the following uses (this option is not available to applicants for new products):

☐ 5. I request voluntary cancellation of the registration of this product. (This option is not available to applicants for new products.)

REGISTRANT'S AUTHORIZED REPRESENTATIVE	SIGNATURE	DATE

EPA Form 8580-1 (10-82)

APPENDIX II-3

OMB Approval No. 2000-0468 (Expires: 12-31-83)

CERTIFICATION OF ATTEMPT TO ENTER INTO AN AGREEMENT WITH OTHER REGISTRANTS FOR DEVELOPMENT OF DATA

(To qualify, certify ALL four items)

1. I am duly authorized to represent the following firm(s) who are subject to the requirements of a Notice under FIFRA Section 3(c)(2)(B) contained in a Guidance Document to submit data concerning the active ingredient:

GUIDANCE DOCUMENT DATE

ACTIVE INGREDIENT

NAME OF FIRM	EPA COMPANY NUMBER

(This firm or group of firms is referred to below as "my firm".)

2. My firm is willing to develop and submit the data as required by that Notice, if necessary. However, my firm would prefer to enter into an agreement with one or more other registrants to develop jointly, or to share in the cost of developing, the following required items or data:

3. My firm has offered in writing to enter into such an agreement. Copies of the offers are attached. That offer was irrevocable and included an offer to be bound by an arbitration decision under FIFRA Section 3(c)(2)(B)(iii) if final agreement on all terms could not be reached otherwise. This offer was made to the following firm(s) on the following date(s):

NAME OF FIRM	DATE OF OFFER

However, none of those firm(s) accepted my offer.

4. My firm requests that EPA not suspend the registration(s) of my firm's product(s), if any of the firms named in paragraph (3) above have agreed to submit the data listed in paragraph (2) above in accordance with the Notice. I understand EPA will promptly inform me whether my firm must submit data to avoid suspension of its registration(s) under FIFRA Section 3(c)(2)(B). (This statement does not apply to applicants for new products.) I give EPA permission to disclose this statement upon request.

TYPED NAME	SIGNATURE	DATE

EPA Form 8580-6 (10-82)

PRODUCT SPECIFIC DATA REPORT

EPA Registration No.______________ Guidance Document for______________________

Date______________________

Registration Guideline No.	Name of Test	Test not required for my product listed above (check below)	I am complying with data requirements by		(For EPA Use Only) Accession Numbers Assigned
			Citing MRID#	Submitting Data (Attached)	
§158.20 PRODUCT CHEMISTRY					
61-1	Identity of ingredients				
61-2	Statement of composition				
61-3	Discussion of formation of ingredients				
62-1	Preliminary analysis				
62-2	Certification of limits				
62-3	Analytical methods for enforcement limits				
63-2	Color				
63-3	Physical state				
63-4	Odor				
63-5	Melting point				
63-6	Boiling point				
63-7	Density, bulk-density, or specific gravity				
63-8	Solubility		-		
63-9	Vapor pressure				
63-10	Dissociation constant				
63-11	Octanol/water partition coefficient				
63-12	pH				
63-13	Stability				
63-14	Oxidizing/reducing reaction				
63-15	Flammability				
63-16	Explodability				
63-17	Storage stability				
63-18	Viscosity				
63-19	Miscibility				
63-20	Corrosion characteristics				
63-21	Dielectric breakdown voltage				
§158.135 TOXICOLOGY					
81-1	Acute oral LD-50, rat				
81-2	Acute dermal LD-50				
81-3	Acute inhalation, LC-50 rat				
81-4	Primary eye irritation, rabbit				
81-5	Primary dermal irritation				
81-6	Dermal sensitization				

~~cant obtained the data from another firm (identify); applicant copied data from a publication; applicant obtained a copy of the data from EPA).~~

~~(d) The applicant shall submit with his application a statement that EPA, in its evaluation of the properties, efficacy, and safety of the formulated end-use product, may not consider any data as supporting the application, except the following data:~~

~~(1) The data the applicant has submitted to EPA under paragraph (b) of this section;~~

~~(2) Other data pertaining to the safety of the product's active ingredients, rather than to the safety of the end-use product; and~~

~~(3) Existing tolerances, food additive regulations, exemptions, and other clearances issued under the Federal Food, Drug, and Cosmetic Act.~~

~~(e) If the applicant knows that any item of data he submitted under this section was generated by (or at the expense of) another person who originally submitted the data to EPA (or its predecessor, USDA) on or after January 1, 1970, to support an application for registration, experimental use permit, or amendment adding a new use to an existing registration, or for reregistration (unless the applicant and the original data submitter have reached written agreement on the amount and the terms of payment of any compensation that may be payable under FIFRA section 3(c)(1)(D)(ii) with regard to approval of the application), the applicant shall submit to EPA a statement that he has furnished to each such identified original data submitter:~~

~~(1) A notification of the applicant's intent to apply for registration, including the proposed product name;~~

~~(2) An offer to pay the person compensation, with regard to the approval of the application, to the extent required by FIFRA sections 3(c)(1)(D) and 3(c)(2)(D);~~

~~(3) An identification of the item(s) of data to which the offer applies;~~

~~(4) An offer to commence negotiations to ascertain the amount and terms of compensation to be paid; and~~

~~(5) The applicant's name, address, and telephone number.~~

~~(f) If the applicant's product contains any active ingredient other than those that are present solely because of the incorporation into the product, during formulation, of one or more other registered pesticide products purchased from another producer, then the applicant shall also comply with § 162.9-5 as to such active ingredient, and the application shall contain an acknowledgment that for purposes of FIFRA section 3(c)(1)(D) the application relies on (and any resulting registration should be regarded as if it were based on the Administrator's consideration of) the following data:~~

~~(1) All data submitted or specifically cited by the applicant in support of the registration; and~~

~~(2) Each other item of data in the Agency's files which:~~

~~(i) Concerns the properties or effects of any such active ingredient; and~~

~~(ii) Is one of the types of data that EPA would require to be submitted for scientific review by EPA if the applicant sought the initial registration under FIFRA Section 3(c)(5) of a product with composition and intended uses identical to those proposed for the applicant's product, under the data requirements in effect on the date EPA approves the applicant's present application.~~

~~(Secs. 3, 6, and 25 of FIFRA, as amended, 7 U.S.C. 136 *et seq.*)~~

~~[44 FR 27953, May 11, 1979]~~

§ 162.10 Labeling requirements.

(a) *General*—(1) *Contents of the label.* Every pesticide products shall bear a label containing the information specified by the Act and the regulations in this Part. The contents of a label must show clearly and prominently the following:

(i) The name, brand, or trademark under which the product is sold as prescribed in paragraph (b) of this section;

(ii) The name and address of the producer, registrant, or person for whom produced as prescribed in paragraph (c) of this section;

(iii) The net contents as prescribed in paragraph (d) of this section;

(iv) The product registration number as prescribed in paragraph (e) of this section;

(v) The producing establishment number as prescribed in paragraph (f) of this section;

(vi) An ingredient statement as prescribed in paragraph (g) of this section;

(vii) Warning or precautionary statements as prescribed in paragraph (h) of this section;

(viii) The directions for use as prescribed in paragraph (i) of this section; and

(ix) The use classification(s) as prescribed in paragraph (j) of this section.

(2) *Prominence and legibility.* (i) All words, statements, graphic representations, designs or other information required on the labeling by the Act or the regulations in this part must be clearly legible to a person with normal vision, and must be placed with such conspicuousness (as compared with other words, statements, designs, or graphic matter on the labeling) and expressed in such terms as to render it likely to be read and understood by the ordinary individual under customary conditions of purchase and use.

(ii) All required label text must:

(A) Be set in 6-point or larger type;

(B) Appear on a clear contrasting background; and

(C) Not be obscured or crowded.

(3) *Language to be used.* All required label or labeling text shall appear in the English language. However, the Agency may require or the applicant may propose additional text in other languages as is considered necessary to protect the public. When additional text in another language is necessary, all labeling requirements will be applied equally to both the English and other-language versions of the labeling.

(4) *Placement of Label*—(i) *General.* The label shall appear on or be securely attached to the immediate container of the pesticide product. For purposes of this Section, and the misbranding provisions of the Act, "securely attached" shall mean that a label can reasonably be expected to remain affixed during the foreseeable conditions and period of use. If the immediate container is enclosed within a wrapper or outside container through which the label cannot be clearly read, the label must also be securely attached to such outside wrapper or container, if it is a part of the package as customarily distributed or sold.

(ii) *Tank cars and other bulk containers*—(A) *Transportation.* While a pesticide product is in transit, the appropriate provisions of 49 CFR Parts 170-189, concerning the transportation of hazardous materials, and specifically those provisions concerning the labeling, marking and placarding of hazardous materials and the vehicles carrying them, define the basic Federal requirements. In addition, when any registered pesticide product is transported in a tank car, tank truck or other mobile or portable bulk container, a copy of the accepted label must be attached to the shipping papers, and left with the consignee at the time of delivery.

(B) *Storage.* When pesticide products are stored in bulk containers, whether mobile or stationary, which remain in the custody of the user, a copy of the label of labeling, including all appropriate directions for use, shall be securely attached to the container in the immediate vicinity of the discharge control valve.

(5) *False or misleading statements.* Pursuant to section 2(q)(1)(A) of the Act, a pesticide or a device declared subject to the Act pursuant to § 162.15, is misbranded if its labeling is false or misleading in any particular including both pesticidal and non-pesticidal claims. Examples of statements or representations in the labeling which constitute misbranding include:

(i) A false or misleading statement concerning the composition of the product;

(ii) A false or misleading statement concerning the effectiveness of the product as a pesticide or device;

(iii) A false or misleading statement about the value of the product for purposes other than as a pesticide or device;

(iv) A false or misleading comparison with other pesticides or devices;

(v) Any statement directly or indirectly implying that the pesticide or device is recommended or endorsed by any agency of the Federal Government;

(vi) The name of a pesticide which contains two or more principal active ingredients if the name suggests one or more but not all such principal active ingredients even though the names of the other ingredients are stated elsewhere in the labeling;

(vii) A true statement used in such a way as to give a false or misleading impression to the purchaser;

(viii) Label disclaimers which negate or detract from labeling statements required under the Act and these regulations;

(ix) Claims as to the safety of the pesticide or its ingredients, including statements such as "safe," "nonpoisonous," "noninjurious," "harmless" or "nontoxic to humans and pets" with or without such a qualifying phrase as "when used as directed"; and

(x) Non-numerical and/or comparative statements on the safety of the product, including but not limited to:

(A) "Contains all natural ingredients";

(B) "Among the least toxic chemicals known"

(C) "Pollution approved"

(6) *Final printed labeling.* (i) Except as provided in paragraph (a)(6)(ii) of this section, final printed labeling must be submitted and accepted prior to registration. However, final printed labeling need not be submitted until draft label texts have been provisionally accepted by the Agency.

(ii) Clearly legible reproductions or photo reductions will be accepted for unusual labels such as those silk-screened directly onto glass or metal containers or large bag or drum labels. Such reproductions must be of microfilm reproduction quality.

(b) *Name, brand, or trademark.* (1) The name, brand, or trademark under which the pesticide product is sold shall appear on the front panel of the label.

(2) No name, brand, or trademark may appear on the label which:

(i) Is false or misleading, or

(ii) Has not been approved by the Administrator through registration or supplemental registration as an additional name pursuant to § 162.6(b)(4).

(c) Name and address of producer, registrant, or person for whom produced. An unqualified name and address given on the label shall be considered as the name and address of the producer. If the registrant's name appears on the label and the registrant is not the producer, or if the name of the person for whom the pesticide was produced appears on the label, it must be qualified by appropriate wording such as "Packed for * * *," "Distributed by * * *," or "Sold by * * *" to show that the name is not that of the producer.

(d) *Net weight or measure of contents.* (1) The net weight or measure of content shall be exclusive of wrappers or other materials and shall be the average content unless explicitly stated as a minimum quantity.

(2) If the pesticide is a liquid, the net content statement shall be in terms of liquid measure at 68° F (20°C) and shall be expressed in conventional American units of fluid ounces, pints, quarts, and gallons.

(3) If the pesticide is solid or semisolid, viscous or pressurized, or is a mixture of liquid and solid, the net content statement shall be in terms of weight expressed as avoirdupois pounds and ounces.

(4) In all cases, net content shall be stated in terms of the largest suitable units, i.e., "1 pound 10 ounces" rather than "26 ounces."

(5) In addition to the required units specified, net content may be expressed in metric units.

(6) Variation above minimum content or around an average is permissible only to the extent that it represents deviation unavoidable in good manufacturing practice. Variation below a stated minimum is not permitted. In no case shall the average content of the packages in a shipment fall below the stated average content.

(e) *Product registration number.* The registration number assigned to the pesticide product at the time of registration shall appear on the label, preceded by the phrase "EPA Registration No.," or the phrase "EPA Reg. No." The registration number shall be set in type of a size and style similar to other print on that part of the label on which it appears and shall run parallel to it. The registration number and the required identifying phrase shall not appear in such a manner as to suggest or imply recommendation or endorsement of the product by the Agency.

(f) *Producing establishments registration number.* The producing establishment registration number preceded by the phrase "EPA Est.", of the final establishment at which the product was produced may appear in any suitable location on the label or immediate container. It must appear on the wrapper or outside container of the package if the EPA establishment registration number on the immediate container cannot be clearly read through such wrapper or container.

(g) *Ingredient statement*—(1) *General.* The label of each pesticide product must bear a statement which contains the name and percentage by weight of each active ingredient, the total percentage by weight of all inert ingredients; and if the pesticide contains arsenic in any form, a statement of the percentages of total and water-soluble arsenic calculated as elemental arsenic. The active ingredients must be designated by the term "active ingredients" and the inert ingredients by the term "inert ingredients," or the singular forms of these terms when appropriate. Both terms shall be in the same type size, be aligned to the same margin and be equally prominent. The statement "Inert Ingredients, none" is not required for pesticides which contain 100 percent active ingredients. Unless the ingredient statement is a complete analysis of the pesticide, the term "analysis" shall not be used as a heading for the ingredient statement.

(2) *Position of ingredient statement.* (i) The ingredient statement is normally required on the front panel of the label. If there is an outside container or wrapper through which the ingredient statement cannot be clearly read, the ingredient statement must also appear on such outside container or wrapper. If the size or form of the package makes it impracticable to place the ingredient statement on the front panel of the label, permission may be granted for the ingredient statement to appear elsewhere.

(ii) The text of the ingredient statement must run parallel with other text on the panel on which it appears, and must be clearly distinguishable from and must not be placed in the body of other text.

(3) *Names to be used in ingredient statement.* The name used for each ingredient shall be the accepted common name, if there is one, followed by the chemical name. The common name may be used alone only if it is well known. If no common name has been established, the chemical name alone shall be used. In no case will the use of a trademark or proprietary name be permitted unless such name has been accepted as a common name by the Administrator under the authority of Section 25(c)(6).

(4) *Statements of percentages.* The percentages of ingredients shall be stated in terms of weight-to-weight. The sum of percentages of the active and the inert ingredients shall be 100. Percentages shall not be expressed by a range of values such as "22-25%." If the uses of the pesticide product are expressed as weight of active ingredient per unit area, a statement of the weight of active ingredient per unit volume of the pesticide formulation shall also appear in the ingredient statement.

(5) *Accuracy of stated percentages.* The percentages given shall be as precise as possible reflecting good manufacturing practice. If there may be unavoidable variation between manufacturing batches, the value stated for each active ingredient shall be the lowest percentage which may be present.

(6) *Deterioration.* Pesticides which change in chemical composition significantly must meet the following labeling requirements:

(i) In cases where it is determined that a pesticide formulation changes chemical composition significantly, the product must bear the following statement in a prominent position on the label: "Not for sale or use after [date]."

(ii) The product must meet all label claims up to the expiration time indicated on the label.

(7) *Inert ingredients.* The Administrator may require the name of any

inert ingredient(s) to be listed in the ingredient statement if he determines that such ingredient(s) may pose a hazard to man or the environment.

(h) *Warnings and precautionary statements.* Required warnings and precautionary statements concerning the general areas of toxicological hazard including hazard to children, environmental hazard, and physical or chemical hazard fall into two groups: those required on the front panel of the labeling and those which may appear elsewhere. Specific requirements concerning content, placement, type size, and prominence are given below.

(1) *Required front panel statements.* With the exception of the child hazard warning statement, the text required on the front panel of the label is determined by the Toxicity Category of the pesticide. The category is assigned on the basis of the highest hazard shown by any of the indicators in the table below:

Hazard indicators	Toxicity categories			
	I	II	III	IV
Oral LD_{50}	Up to and including 50 mg/kg.	From 50 thru 500 mg/kg.	From 500 thru 5000 mg/kg.	Greater than 5000 mg/kg.
Inhalation LC_{50}	Up to and including .2 mg/liter.	From .2 thru 2 mg/liter.	From 2. thru 20 mg/liter.	Greater than 20 mg/liter.
Dermal LD_{50}	Up to and including 200 mg/kg.	From 200 thru 2000	From 2,000 thru 20,000	Greater than 20,000.
Eye effects	Corrosive; corneal opacity not reversible within 7 days.	Corneal opacity reversible within 7 days; irritation persisting for 7 days.	No corneal opacity; irritation reversible within 7 days.	No irritation.
Skin effects	Corrosive	Severe irritation at 72 hours.	Moderate irritation at 72 hours.	Mild or slight irritation at 72 hours.

(i) *Human hazard signal word*—(A) *Toxicity Category I.* All pesticide products meeting the criteria of Toxicity Category I shall bear on the front panel the signal word "Danger." In addition if the product was assigned to Toxicity Category I on the basis of its oral, inhalation or dermal toxicity (as distinct from skin and eye local effects) the word "Poison" shall appear in red on a background of distinctly contrasting color and the skull and crossbones shall appear in immediate proximity to the word "poison."

(B) *Toxicity Category II.* All pesticide products meeting the criteria of Toxicity Category II shall bear on the front panel the signal word "Warning."

(C) *Toxicity Category III.* All pesticide products meeting the criteria of Toxicity Category III shall bear on the front panel the signal word "Caution."

(D) *Toxicity Category IV.* All pesticide products meeting the criteria of Toxicity Category IV shall bear on the front panel the signal word "Caution."

(E) *Use of signal words.* Use of any signal word(s) associated with a higher Toxicity Category is not permitted except when the Agency determines that such labeling is necessary to prevent unreasonable adverse effects on man or the environment. In no case shall more than one human hazard signal word appear on the front panel of a label.

(ii) *Child hazard warning.* Every pesticide product label shall bear on the front panel the statement "keep out of reach of children." Only in cases where the likelihood of contact with children during distribution, marketing, storage or use is demonstrated by the applicant to be extremely remote, or if the nature of the pesticide is such that it is approved for use on infants or small children, may the Administrator waive this requirement.

(iii) *Statement of practical treatment*—(A) *Toxicity Category I.* A statement of practical treatment (first aid or other) shall appear on the front panel of the label of all pesticides falling into Toxicity Category I on the basis of oral, inhalation or dermal toxicity. The Agency may, however, permit reasonable variations in the placement of the statement of practical treatment is some reference such as "See statement of practical treatment on back panel" appears on the front panel near the word "Poison" and the skull and crossbones.

(B) *Other toxicity categories.* The statement of practical treatment is not required on the front panel except as described in paragraph (h)(1)(iii)(A) of this section. The applicant may, however, include such a front panel statement at his option. Statements of practical treatment are, however, required elsewhere on the label in accord with paragraph (h)(2) of this section if they do not appear on the front panel.

(iv) *Placement and prominence.* All the require front panel warning statements shall be grouped together on the label, and shall appear with sufficient prominence relative to other front panel text and graphic material to make them unlikely to be overlooked under customary conditions of purchase and use. The following table shows the minimum type size requirements for the front panel warning statements on various sizes of labels:

Size of label front panel in square inches	Points	
	Required signal word, all capitals	"Keep out of reach of Children
5 and under	6	6
Above 5 to 10	10	6
Above 10 to 15	12	8
Above 15 to 30	14	10
Over 30	18	12

(2) *Other required warnings and precautionary statements.* The warnings and precautionary statements as required below shall appear together on the label under the general heading "Precautionary Statements" and under appropriate subheadings of "Hazard to Humans and Domestic Animals," "Environmental Hazard" and "Physical or Chemical Hazard."

(i) *Hazard to humans and domestic animals.* (A) Where a hazard exists to humans or domestic animals, precautionary statements are required indicating the particular hazard, the route(s) of exposure and the precautions to be taken to avoid accident, injury or damage. The precautionary paragraph shall be immediately preceded by the appropriate hazard signal word.

(B) The following table depicts typical precautionary statements. These statements must be modified or expanded to reflect specific hazards.

Toxicity category	Precautionary statements by toxicity category	
	Oral, inhalation, or dermal toxicity	Skin and eye local effects
I	Fatal (poisonous) if swallowed [inhaled or absorbed through skin]. Do not breathe vapor [dust or spray mist]. Do not get in eyes, on skin, or on clothing [Front panel statement of practical treatment required.].	Corrosive, causes eye and skin damage [or skin irritation]. Do not get in eyes, on skin, or on clothing. Wear goggles or face shield and rubber gloves when handling. Harmful or fatal if swallowed. [Appropriate first aid statement required.]
II	May be fatal if swallowed [inhaled or absorbed through the skin]. Do not breathe vapors [dust or spray mist]. Do not get in eyes, on skin, or on clothing. [Appropriate first aid statements required.].	Causes eye [and skin] irritation. Do not get in eyes, on skin, or on clothing. Harmful if swallowed. [Appropriate first aid statement required.]
III	Harmful if swallowed [inhaled or absorbed through the skin]. Avoid breathing vapors [dust or spray mist]. Avoid contact with skin [eyes or clothing]. [Appropriate first aid statement required.].	Avoid contact with skin, eyes or clothing. In case of contact immediately flush eyes or skin with plenty of water. Get medical attention if irritation persists.
IV	[No precautionary statements required.]	[No precautionary statements required.]

(ii) *Environmental hazards.* Where a hazard exists to non target organisms excluding humans and domestic animals, precautionary statements are required stating the nature of the hazard and the appropriate precautions to avoid potential accident, injury or damage. Examples of the hazard statements and the circumstances under which they are required follow:

(A) If a pesticide intended for outdoor use contains an active ingredient with a mammalian acute oral LD_{50} of 100 or less, the statement "This Pesticide is Toxic to Wildlife" is required.

(B) If a pesticide intended for outdoor use contains an active ingredient with a fish acute LC_{50} of 1 ppm or less, the statement "This Pesticide is Toxic to Fish" is required.

(C) If a pesticide intended for outdoor use contains an active ingredient with an avian acute oral LD_{50} of 100 mg/kg or less, or a subacute dietary LC_{50} of 500 ppm or less, the statement "This Pesticide is Toxic to Wildlife" is required.

(D) If either accident history or field studies demonstrate that use of the pesticide may result in fatality to birds, fish or mammals, the statement "This pesticide is extremely toxic to wildlife (fish)" is required.

(E) For uses involving foliar application to agricultural crops, forests, or shade trees, or for mosquito abatement treatments, pesticides toxic to pollinating insects must bear appropriate label cautions.

(F) For all outdoor uses other than aquatic applications the label must bear the caution "Keep out of lakes, ponds or streams. Do not contaminate water by cleaning of equipment or disposal of wastes."

(iii) *Physical or chemical hazards.* Warning statements on the flammability or explosive characteristics of the pesticide are required as follows:

Flash point	Required text
(A) PRESSURIZED CONTAINERS	
Flash point at or below 20° F; if there is a flashback at any valve opening.	Extremely flammable. Contents under pressure. Keep away from fire, sparks, and heated surfaces. Do not puncture or incinerate container. Exposure to temperatures above 130° F may cause bursting.
Flash point above 20° F and not over 80° F or if the flame extension is more than 18 in long at a distance of 6 in from the flame.	Flammable. Contents under pressure. Keep away from heat, sparks, and open flame. Do not puncture or incinerate container. Exposure to temperatures above 130° F may cause bursting.
All other pressurized containers	Contents under pressure. Do not use or store near heat or open flame. Do not puncture or incinerate container. Exposure to temperatures above 130° F may cause bursting.
(B) NONPRESSURIZED CONTAINERS	
At or below 20° F	Extremely flammable. Keep away from fire, sparks, and heated surfaces.
Above 20° F and not over 80° F	Flammable. Keep away from heat and open flame.
Above 80° F and not over 150° F	Do not use or store near heat or open flame.

(i) *Directions for Use*—(1) *General requirements*—(i) *Adequacy and clarity of directions.* Directions for use must be stated in terms which can be easily read and understood by the average person likely to use or to supervise the use of the pesticide. When followed, directions must be adequate to protect the public from fraud and from personal injury and to prevent unreasonable adverse effects on the environment.

(ii) *Placement of directions for use.* Directions may appear on any portion of the label provided that they are conspicuous enough to be easily read by the user of the pesticide product. Directions for use may appear on printed or graphic matter which accompanies the pesticide provided that:

(A) If required by the Agency, such printed or graphic matter is securely attached to each package of the pesticide, or placed within the outside wrapper or bag;

(B) The label bears a reference to the directions for use in accompanying leaflets or circulars, such as "See directions in the enclosed circular:" and

(C) The Administrator determines that it is not necessary for such directions to appear on the label.

(iii) *Exceptions to requirement for direction for use*—(A) Detailed directions for use may be omitted from labeling of pesticides which are intended for use only by manufacturers of products other than pesticide products in their regular manufacturing processes, provided that:

(*1*) The label clearly shows that the product is intended for use only in manufacturing processes and specifies the type(s) of products involved.

(*2*) Adequate information such as technical data sheets or bulletins, is available to the trade specifying the type of product involved and its proper use in manufacturing processes;

(*3*) The product will not come into the hands of the general public except after incorporation into finished products; and

(*4*) The Administrator determines that such directions are not necessary to prevent unreasonable adverse effects on man or the environment.

(B) Detailed directions for use may be omitted from the labeling of pesticide products for which sale is limited to physicians, veterinarians, or druggists, provided that:

(*1*) The label clearly states that the product is for use only by physicians or veterinarians;

(*2*) The Administrator determines that such directions are not necessary to prevent unreasonable adverse effects on man or the environment; and

(*3*) The product is also a drug and regulated under the provisions of the Federal Food, Drug and Cosmetic Act.

(C) Detailed directions for use may be omitted from the labeling of pesticide products which are intended for use only by formulators in preparing pesticides for sale to the public, provided that:

(*1*) There is information readily available to the formulators on the composition, toxicity, methods of use, applicable restrictions or limitations, and effectiveness of the product for pesticide purposes;

(*2*) The label clearly states that the product is intended for use only in manufacturing, formulating, mixing, or repacking for use as a pesticide and specifies the type(s) of pesticide products involved;

(*3*) The product as finally manufactured, formulated, mixed, or repackaged is registered; and

(*4*) The Administrator determines that such directions are not necessary to prevent unreasonable adverse effects on man or the environment.

(2) *Contents of Directions for Use.* The directions for use shall include the following, under the headings "Directions for Use":

(i) The statement of use classification as prescribed in 162.10(*j*) immediately under the heading "Directions for Use."

(ii) Immediately below the statement of use classification, the statement "It is a violation of Federal law to use this product in a manner inconsistent with its labeling."

(iii) The site(s) of application, as for example the crops, animals, areas, or objects to be treated.

(iv) The target pest(s) associated with each site.

(v) The dosage rate associated with each site and pest.

(vi) The method of application, including instructions for dilution, if required, and type(s) of application apparatus or equipment required.

(vii) The frequency and timing of applications necessary to obtain effective results without causing unreasonable adverse effects on the environment.

(viii) Specific limitations on reentry to areas where the pesticide has been applied, meeting the requirements concerning reentry provided by 40 CFR Part 170.

(ix) Specific directions concerning the storage and disposal of the pesticide and its container, meeting the requirements of 40 CFR Part 165. These instructions shall be grouped and appear under the heading "Storage and Disposal." This heading must be set in type of the same minimum sizes as required for the child hazard warning (See Table in § 162.10(h)(1)(iv).)

(x) Any limitations or restrictions on use required to prevent unreasonable adverse effects, such as:

(A) Required intervals between application and harvest of food or feed crops.

(B) Rotational crop restrictions.

(C) Warnings as required against use on certain crops, animals, objects, or in or adjacent to certain areas.

(D) [Reserved]

(E) For restricted use pesticides, a statement that the pesticide may be applied under the direct supervision of a certified applicator who is not physically present at the site of application but nonetheless available to the person applying the pesticide, unless the Agency has determined that the pesticide may only be applied under the direct supervision of a certified applicator who is physically present.

(F) Other pertinent information which the Administrator determines to be necessary for the protection of man and the environment.

(j) *Statement of Use Classification.* By October 22, 1976, all pesticide products must bear on their labels a statement of use classification as described in paragraphs (j)(1) and (2) of this section. Any pesticide product for which some uses are classified for general use and others for restricted use shall be separately labeled according to the labeling standards set forth in this subsection, and shall be marketed as separate products with different registration numbers, one bearing directions only for general use(s) and the other bearing directions for restricted use(s) except that, if a product has both restricted use(s) and general use(s), both of these uses may appear on a product labeled for restricted use. Such products shall be subject to the provisions of § 162.10(j)(2).

(1) *General Use Classification.* Pesticide products bearing directions for use(s) classified general shall be labeled with the exact words "General Classification" immediately below the heading "Directions for Use." And reference to the general classification that suggests or implies that the general utility of the pesticide extends beyond those purposes and uses contained in the Directions for Use will be considered a false or misleading statement under the statutory definitions of misbranding.

(2) *Restricted Use Classification.* Pesticide products bearing direction for use(s) classified restricted shall bear statements of restricted use classification on the front panel as described below:

(i) *Front panel statement of restricted use classification.* (A) At the top of the front panel of the label, set in type of the same minimum sizes as required for human hazard signal words (see table in § 162.10(h)(1)(iv)), and appearing with sufficient prominence relative to other text and graphic material on the front panel to make it unlikely to be overlooked under customary conditions of purchase and use, the statement "Restricted Use Pesticide" shall appear.

(B) Directly below this statement on the front panel, a summary statement of the terms of restriction imposed as a precondition to registration shall appear. If use is restricted to certified applicators, the following statement is required: "For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's certification." If, however, other regulatory restrictions are imposed, the Administrator will define the appropriate wording for the terms of restriction by regulation.

(k) Advertising. [Reserved]

[40 FR 28268, July 3, 1975; 40 FR 32329, Aug. 1, 1975; 40 FR 36571, Aug. 21, 1975, as amended at 43 FR 5786, Feb. 9, 1978]

~~§ 162.11 Criteria for determinations of unreasonable adverse effects.~~

~~(a) *Criteria for Issuance of Notice of Intent to Deny Registration, Cancel Registration, or to Hold a Hearing*—(1) *Presumption.* (i) A rebuttable presumption shall arise that a notice of intent to deny registration pursuant to section 3(c)(6) of the Act, a notice of intent to cancel registration pursuant to section 6(b)(1) of the Act, or a notice of intent to hold a hearing to determine whether the registration should be cancelled or denied, as appropriate, shall be issued, upon a determination by the Administrator that the pesticide meets or exceeds any of the criteria for risk set forth in paragraph (a)(3) of this section. Upon such determination, the Administrator shall issue notice by certified mail to the applicant or registrant, as the case may be, stating that the applicant or registrant has the opportunity to submit evidence in rebuttal of such presumption in accordance with paragraph (a)(4) of this section. The applicant or registrant shall have forty-five~~

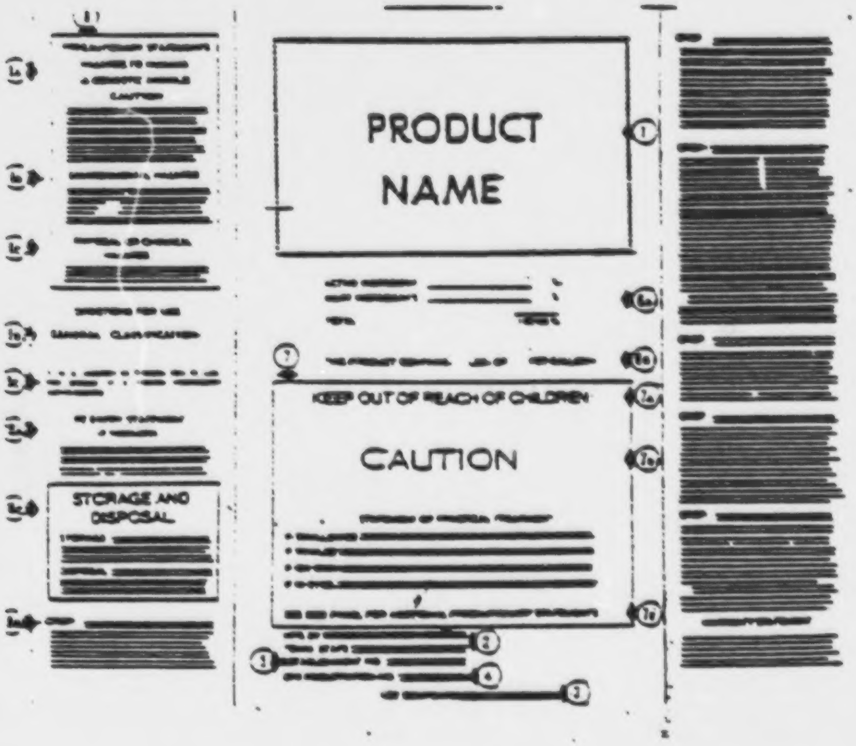
LABELING REQUIREMENTS OF THE FIFRA, AS AMENDED

ITEM	LABEL ELEMENT	APPLICABILITY OF REQUIREMENT	PLACEMENT ON LABEL		COMMENTS
			REQUIRED	PREFERRED	
1	Product name	All products	Front panel	Center front panel	
2	Company name and address	All products	None	Bottom front panel or end of label text	If registrant is not the producer, must be qualified by "Packed for . . .," "Distributed by. . .," etc.
3	Net contents	All products	None	Bottom front panel or end of label text	May be in metric units in addition to U.S. units
4	EPA Est. No.	All products	None	Front panel	Must be in similar type size and run parallel to other type.
5	EPA Reg. No.	All products	None	Front panel, immediately before or following Reg. No.	May appear on the container instead of the label.
6A	Ingredients statement	All products	Front panel	Immediately following product name	Text must run parallel with other text on the panel.
6B	Pounds/gallon statement	Liquid products where dosage given as lbs. ai/unit area	Front panel	Directly below the main ingredients statement	
7	Front panel precautionary statements	All products	Front panel		All front panel precautionary statements must be grouped together, preferably blocked.
7A	Keep Out of Reach of Children (Child hazard warning)	All products	Front panel	Above signal word	Note type size requirements.
7B	Signal word	All products	Front panel	Immediately below child hazard warning	Note type size requirements.

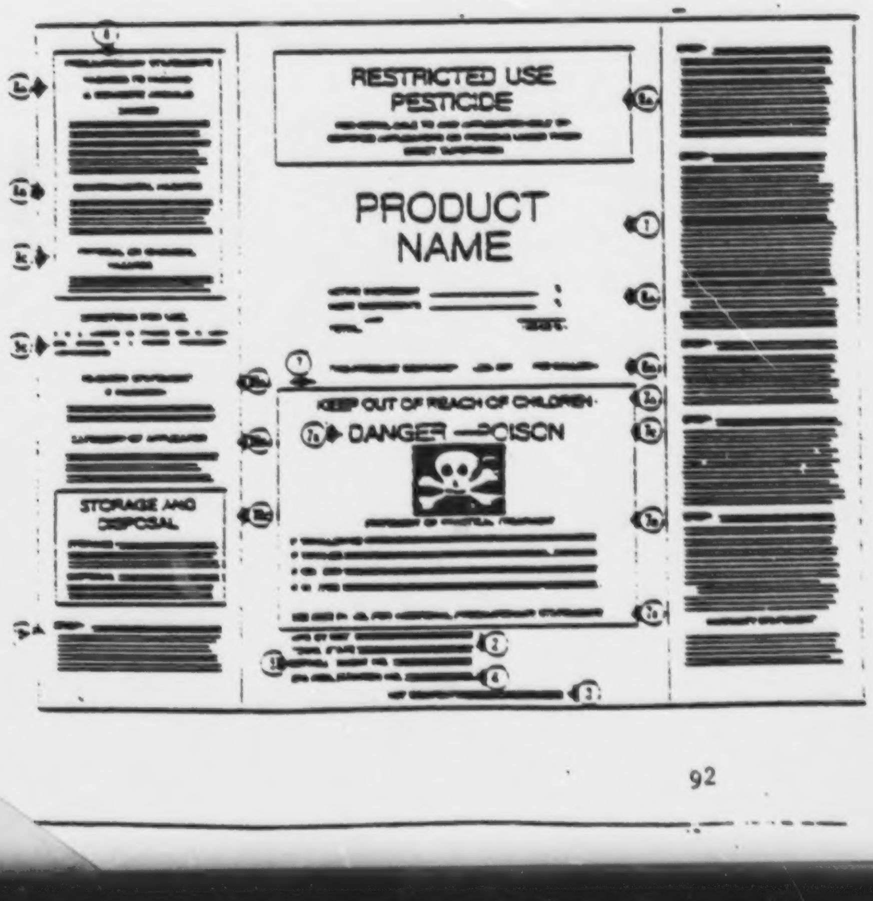
ITEM	LABEL ELEMENT	APPLICABILITY OF REQUIREMENT	PLACEMENT ON LABEL		COMMENTS
			REQUIRED	PREFERRED	
7C	Skull & crossbones and word POISON (in red)	All products which are Category I based on oral, dermal, or inhalation toxicity	Front panel	Both in close proximity to signal word	
7D	Statement of practical treatment	All products in Categories I, II, and III	Category I: Front panel unless referral statement is used. Others: Grouped with side panel precautionary statements.	Front panel for all.	
7E	Referral statement	All products where precautionary labeling appears on other than front panel.	Front panel		
8	Side/back panel precautionary statements	All products	None	Top or side of back panel preceding directions for use	Must be grouped under the headings in 8A, 8B, and 8C; preferably blocked.
8A	Hazards to humans and domestic animals	All products in Categories I, II, and III	None	Same as above	Must be preceded by appropriate signal word.
8B	Environmental hazards	All products	None	Same as above	Environmental hazards include bee caution where applicable.

ITEM	LABEL ELEMENT	APPLICABILITY OF REQUIREMENT	PLACEMENT ON LABEL		COMMENTS
			REQUIRED	PREFERRED	
8C	Physical or chemical hazards	All pressurized products, others with flash points under 150°F	None	Same as above	
9A	Restricted block	All restricted products	Top center of front panel	Preferably blocked	Includes a statement of the terms of restriction. The words "RESTRICTED USE PESTICIDE" must be same type size as signal word.
9C	Misuse statement	All products	Immediately following statement of classification or ahead of directions for use		
10A	Re-entry statement	All cholinesterase inhibitors	In the directions for use	Immediately after misuse statement	
10C	Storage and disposal block	All products	In the directions for use	Immediately before specific directions for use or at the end of directions for use	Must be set apart and clearly distinguishable from from other directions for use.
10D U.S.	Directions for use	All products	None	None	May be in metric as well as U.S. units

SAMPLE LABELS


PRODUCT
NAME
KEEP OUT OF REACH OF CHILDREN
CAUTION
STORAGE AND
DISPOSAL

General Use Pesticide


RESTRICTED USE
PESTICIDE
PRODUCT
NAME
KEEP OUT OF REACH OF CHILDREN
DANGER—POISON
STORAGE AND
DISPOSAL

Restricted Use Pesticide

Appendix IV-3

PHYSICAL-CHEMICAL HAZARDS

Criteria	Required Label Statement
I. Pressurized Containers	
A. Flashpoint at or below 20°F; or if there is a flashback at any valve opening.	Extremely flammable. Contents under pressure. Keep away from fire, sparks, and heated surfaces. Do not puncture or incinerate container. Exposure to temperatures above 130°F may cause bursting.
B. Flashpoint above 20°F and not over 80°F; or if the flame extension is more than 18 inches long at a distance of 6 inches from the valve opening.	Flammable. Contents under pressure. Keep away from heat, sparks, and flame. Do not puncture or incinerate container. Exposure to temperatures above 130°F may cause bursting.
C. ALL OTHER PRESSURIZED CONTAINERS	Contents under pressure. Do not use or store near heat or open flame. Do not puncture or incinerate container. Exposure to temperatures above 130°F may cause bursting.
II. Non-Pressurized Containers	
A. Flashpoint at or below 20°F.	Extremely flammable. Keep away from fire, sparks, and heated surfaces.
B. Flashpoint above 20°F and over 80°F.	Flammable. Keep away from heat and open flame.
C. Flashpoint over 80°F and not over 150°F.	Do not use or store near heat and open flame.
D. Flashpoint above 150°F.	None required.

STORAGE AND DISPOSAL INSTRUCTIONS FOR PESTICIDES

All products are required to bear specific label instructions about storage and disposal. Storage and disposal instructions must be grouped together in the directions for use portion of the label under the heading STORAGE AND DISPOSAL. Products intended solely for domestic use need not include the heading "STORAGE AND DISPOSAL." The STORAGE AND DISPOSAL heading must appear in the minimum type size listed below:

Size of label front panel in square inches	Required type size for the heading STORAGE AND DISPOSAL (all capitals)
10 and under	6 point
Above 10 to 15	8 point
Above 15 to 30	10 point
Over 30	12 point

Storage and disposal instructions must be set apart and clearly distinguishable from other directions for use. Blocking storage and disposal statements with a solid line is suggested as a means of increasing their prominence.

A. Storage Instructions:

All product labels are required to have appropriate storage instructions. Specific storage instructions are not prescribed. Each registrant must develop his own storage instructions, considering, when applicable, the following factors:

1. Conditions of storage that might alter the composition or usefulness of the pesticide. Examples could be temperature extremes, excessive moisture or humidity, heat, sunlight, friction, or contaminating substances or media.

2. Physical requirements of storage which might adversely affect the container of the product and its ability to continue to function properly. Requirements might include positioning of the container in storage, storage or damage due to stacking, penetration of moisture, and ability to withstand shock or friction.

3. Specifications for handling the pesticide container, including movement of container within the storage area, proper opening and closing procedures (particularly for opened containers), and measures to minimize exposure while opening or closing container.

4. Instructions on what to do if the container is damaged in any way, or if the pesticide is leaking or has been spilled, and precautions to minimize exposure if damage occurs.

5. General precautions concerning locked storage, storage in original container only, and separation of pesticides during storage to prevent cross-contamination of other pesticides, fertilizer, food, and feed.

6. General storage instructions for household products should emphasize storage in original container and placement in locked storage areas.

B. Pesticide Disposal Instructions:

The label of all products, except those intended solely for domestic use, must bear explicit instructions about pesticide disposal. The statements listed below contain the exact wording that must appear on the label of these products:

1. The labels of all products, except domestic use, must contain the statement, "Do not contaminate water, food, or feed by storage or disposal."

2. Except those products intended solely for domestic use, the labels of all products that contain active ingredients appearing on the "Acutely Hazardous" Commercial Pesticide Products List (RCRA "E" List) at the end of this appendix or are assigned to Toxicity Category I on the basis of oral or dermal toxicity, skin or eye irritation potential, or Toxicity Category I or II on the basis of acute inhalation toxicity must bear the following pesticide disposal statement:

   "Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance."

   The labels of all products, except those intended for domestic use, containing active or inert ingredients that appear on the "Toxic" Commercial Pesticide Products List (RCRA "F" List) at the end of this appendix or presently meet any of the criteria in Subpart C, 40 CFR 261 for a hazardous waste must bear the following pesticide disposal statement:

"Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance."

Labels for all other products, except those intended for domestic use, must bear the following pesticide disposal statement:

"Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility."

3. Products intended for domestic use only must bear the following disposal statement: "Securely wrap original container in several layers of newspaper and discard in trash."

C. Container Disposal Instructions

The label of each product must bear container disposal instructions appropriate to the type of container.

1. All products intended for domestic use must bear one of the following container disposal statements:

Container Type	Statement
Non-aerosol products (bottles, cans, jars)	Do not reuse container (bottle, can, jar). Rinse thoroughly before discarding in trash.
Non-aerosol products (bags)	Do not reuse bag. Discard bag in trash.
Aerosol products	Replace cap and discard containers in trash. Do not incinerate or puncture.

2. The labels for all other products must bear container disposal instructions, based on container type, listed below:

Container Type	Statement
Metal containers (non-aerosol)	Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.
Plastic containers	Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by state and local authorities, by burning If burned, stay out of smoke.
Glass containers	Triple rinse (or equivalent). Then dispose of in a sanitary landfill or by other approved state and local procedures.

Container Type	Statement
Fiber drums with liners	Completely empty liner by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into application equipment. Then dispose of liner in a sanitary landfill or by incineration if allowed by state and local authorities. If drum is contaminated and cannot be reused[1], dispose of in the same manner.
Paper and plastic bags	Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.
Compressed gas cylinders	Return empty cylinder for reuse (or similar wording).

[1] Manufacturer may replace this phrase with one indicating whether and how fiber drum may be reused.

2. The labels for all other products must bear container disposal instructions, based on container type, listed on the first page of this Appendix.

Pesticides that are hazardous wastes under 40 CFR 261.33(e) and (f) when discarded.

"Acutely Hazardous" Commercial Pesticides (RCRA "E" List) Active Ingredients, (no inerts):

Acrolein
Aldicarb
Aldrin
Allyl alcohol
Aluminum phosphide
4-Aminopyridine
Arsenic acid
Arsenic pentoxide
Arsenic trioxide
Calcium cyanide
Carbon disulfide
p-Chloroaniline
Cyanides (soluble cyanide salts, not specified elsewere)
Cyanogen chloride
2-Cyclohexyl-4,6-dinitrophenol
Dieldrin
O,O-Diethyl S-[2-ethylthio)ethyl] phosphorodithioate
  (disulfoton, Di-Syston)
O,O-Diethyl O-pyrazinyl phosphorothioate (Zinophos)
Dimethoate
O,O-Dimethyl O-p-nitrophenyl phosphorothioate (methyl parathion)
4,6-Dinitro-o-cresol and salts
4,6-Dinitro-o-cyclohexylphenol
2,4 Dinitrophenol
Dinoseb
Endosulfan
Endothall
Endrin
Famphur
Fluoroacetamide
Heptachlor
Hexanethyl tetraphosphate
Hydrocyanic acid
Hydrogen cyanide
Methomyl
alpha-Naphthylthiourea (ANTU)
Nicotine and salts
Octamethylpyrophosphoramide (OMPA, schradan)
Parathion

"Acutely Hazardous" Commercial Pesticides (RCRA "E" List)
Active Ingredients continued:

Phenylmercuric acetate (PMA)
Phorate
Potassium cyanide
Propargyl alcohol
Sodium azide
Sodium cyanide
Sodium fluoroacetate
Strychnine and salts
O,O,O,O-Tetraethyl dithiopyrophosphate (sulfotepp)
Tetraethyl pyrophosphate
Thallium sulfate
Thiofanox
Toxaphene
Warfarin
Zinc phosphide

There are currently no inert ingredients for commercial pesticides on the "Acutely Hazardous" List (RCRA "E" List).

"Toxic" Commercial Pesticide Products (RCRA "F" List) Active Ingredients:

Acetone
Acrylonitrile
Amitrole
Benzene
Bis(2-ethylhexyl)pthalate
Cacodylic acid
Carbon tetrachloride
Chloral (hydrate)
Chlordane (technical)
Chlorobenzene
4-Chloro-m-cresol
Chloroform
o-Chlorophenol
4-Chloro-o-toluidine hydrochloride
Creosote
Cresylic acid
Cyclohexane
Decachlorooctahydro-1,3,4-metheno-2H-cyclobuta[c,d]-pentalen-2-one
    (kepone, chlordecone)
1,2-Dibromo-3-chloropropane (DBCP)
Dibutyl phthalate
S-3,3-(Dichloroallyl diisopropylthiocarbamate (diallate, Avadex)
o-Dichlorobenzene
p-Dichlorobenzene
Dichlorodifluoromethane (Freon 12®)
3,5-Dichloro-N-(1,1-dimethyl-2-propynyl) benzamide (pronamide,Kerb)
Dichloro diphenyl dichloroethane (DDD)
Dichloro diphenyl trichloroethane (DDT)
Dichlorethyl ether
2,4-Dichlorophenoxyacetic, esters and salts (2,4-D)
1,2-Dichloropropane
1,3-Dichloropropane (Telone)
Dimethyl phthalate
Ethyl acetate
Ethyl 4,4'-dichlorobenzilate (chlorobenzilate)
Ethylene dibromide (EDB)
Ethylene dichloride
Ethylene oxide
Formaldehyde
Furfural
Hexachlorobenzene
Hexachlorocyclopentadiene
Hexachloroethane
Hydrofluoric acid

"Toxic" Commercial Pesticide Products (RCRA "F" List)
Active Ingredients:

Isobutyl alcohol
Lead acetate
Lindane
Maleic hydrazide
Mercury
Methyl alcohol
Methyl bromide
Methyl chloride
2,2'-Methylenebis (3,4,6-trichlorophenol) (hexachlorophene)
Methylene chloride
Methyl ethyl ketone
4-Methyl-2-pentanone (methyl isobutyl ketone)
Naphthalene
Nitrobenzene
p-Nitrophenol
Pentachloroethane
Pentachloronitrobenzene (PCNB)
Pentaclorophenol
Phenol
Phosphorodithioic acid, 0,0-diethyl, methyl ester
Propylene dichloride
Pyridine
Resorcinol
Safrole
Selenium disulfide
Silvex
1,2,4,5-Tetrachlorobenzene
1,1,2,2-Tetrachloroethane
Tetrachloroethylene
2,3,4,6-Tetrachlorophenol
Thiram
Toluene
1,1,1-Trichloroethane
Trichloroethylene
Trichloromonofluoromethane (Freon 11®)
2,4,5-Trichlorophenol
2,4,6-Trichlorophenol
2,4,5-Trichlorophenoxyacetic acid (2,4,5-T)
Xylene

Appendix IV-5
(continued)

"Toxic" Commercial Pesticide Products (RCRA "F" List)
Inert Ingredients:

Acetone
Acetonitrile
Acetophenone
Acrylic acid
Aniline
Benzene
Chlorobenzene
Chloroform
Cyclohexane
Cyclohexanone
Dichlorodifluoromethane (Freon 12®)
Diethyl phthalate
Dimethylamine
Dimethyl phthalate
1,4-Dioxane
Ethylene oxide
Formaldehyde
Formic acid
Isobutyl alcohol
Meleic anhydride
Methyl alcohol (methanol)
Methyl ethyl ketone
Methyl methacrylate
Naphthalene
Saccharin and salts
Thiourea
Toluene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichlorofluoromethane (Freon 11®)
Vinyl chloride
Xylene

CHLOROTHALONIL*

TYPE PESTICIDE: Fungicide, Antifoulant

FORMULATIONS:
Tech (96%, 98%)
Fl (29.6%, 30.8%, 40.4%, 75%)
D (5%, 96%)
G (2.5%, 5%, 7.4%, 9.5%, 11.25%)
P/T (90%)
WP (26.5%, 36%, 40%, 50%, 75%)
WP/D (5%)
Impr (20%)
EC (3.75%, 6%)
FlC (4.5%, 11.24%, 12%, 12.5%, 19.15%, 29.6%, 40.4%, 51.8%)
RTU (0.42%, 0.45%, 0.47%, 0.48%, 0.49%, 0.67%, 0.68%, 0.69%, 0.7%, 0.71%)

GENERAL WARNINGS AND LIMITATIONS: Do not combine chlorothalonil in the spray tank with pesticides, surfactants or fertilizers, unless prior use has shown the combination physically compatible, effective and noninjurious under the particular conditions of use. Observe all warnings and limitations for other active ingredients on multiple active ingredient labels or in tank mixes.
Precautionary Statements: Keep out of reach of children.
Causes eye irritation. Do not get in eyes. Wear goggles or eye shield when handling. In case of contact with eyes, flush with plenty of water immediately for 15 minutes. Seek medical attention for eyes immediately. Avoid contact with skin or clothing. Wash exposed areas of skin with soap and warm water after handling or using, or handling treated plants.
Do not take internally.
Avoid breathing spray mist or dust.
Note: Chlorothalonil may produce temporary allergic side effects characterized by redness of the eyes, mild bronchial irritation and redness or rash on exposed skin areas. Persons having allergic reaction should contact a physician. Affected persons respond to treatment with antihistamines or steroid creams and/or systemic steroids.
Do not apply in such a manner as to directly, or through drift, expose workers or other persons. Do not enter treated areas without protective clothing until sprays have dried.
Special precautions may be required for greenhouse uses, wood protection treatments, and certain manufacturing uses. Refer to those sites and the appropriate labeling.
Products containing chlorothalonil are toxic to fish. Do not apply directly to water.
Do not apply where runoff is likely to occur.
Do not apply when weather conditions favor drifts from areas treated.

*tetrachloroisophthalonitrile

/31122CA
FBAPBAW
Hoya
Gray mold blight (Botrytis cinera)
(20% Impr)
000070-00223 050534-00021

/31129CA
FBAPBAW
Larkspur
Gray mold blight (Botrytis cinera)
(90% P/T)
050534-00019

(20% Impr)
000070-00223 050534-00021

/31133CA
FBAPBAW
Lobelia
Gray mold blight (Botrytis cinera)
(90% P/T)
050534-00019

(20% Impr)
000070-00223 050534-00021

/35097CA
FBAPBAW
Palm
Gray mold blight (Botrytis cinera)
(20% Impr)
000070-00223 050534-00021

/34109CA
FBAPBAW
Periwinkle
Gray mold blight (Botrytis cinera)
(20% Impr)
000070-00223 050534-00021

/31154CA
FBAPBAW
Petunias
Gray mold blight (Botrytis cinera)
(90% P/T)
050534-00019

(20% Impr)
000070-00223 050534-00021

/31159CA
FBAPBAW
Poinsettia
Gray mold blight (Botrytis cinera)
(20% Impr)
000070-00223 050534-00021

EPA Index to Pesticide Chemicals

CHLOROTHALONIL

Appendix B

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

DOMESTIC OUTDOOR

(Ornamental Plants and Forest Trees)

/35022AA	Ash
FMBCCBM	Leaf spot (Cercospora)
FMBCCBO	Leaf spot (Cercosporidium)
FMBCCFP	Leaf spot (Cylindrosporium)
	(1 lb/gal F1C)
	000769-00489
/34022AA	Azalea
FBADOAV	Ovulinia petal blight
FDACPCN	Phytophthora dieback
	(1 lb/gal F1C)
	000769-00489
/31057AA	Carnation
FBATAAX	Alternaria leaf spot and stem rot
FICHAAX	
FBADBAW	Botrytis blossom blight
	(1 lb/gal F1C)
	000769-00489
/34040AA	Cherry-laurel
FMBCCBM	Cercospora leaf spot
FMBCCDJ	Shot-hole leaf spot (Coccomyces)
	(1 lb/gal F1C)
	000769-00489
/31065AA	Chrysanthemum
FBAPBAW	Gray mold blight (Botrytis)
FMBCSBL	Leaf spot (Septoria)
FBADMCO	Ray blight (Mycosphaerella)
	(5% D)
	007401-00331 000769-00525
	(26.5% WP)
	000538-00134
	(36% WP)
	007764-00041
	(50% WP)
	000004-00290 007401-00330
	(75% WP)
	000004-00289 000829-00232 007764-00028

Chrysanthemum (continued)

(5% WP/D)
007764-00024

(0.4 lb/gal FlC)
001769-00251

(1 lb/gal FlC)
000769-00489

(1.06 lb/gal FlC)
005719-00077

(1.1 lb/gal FlC)
007401-00065

(1.14 lb/gal FlC)
006993-00061

(2.88 lb/gal FlC)
000239-02438 007401-00340

/31085AA Daisies
FBAPBAW Gray mold blight (Botrytis)
FMBCSBL Leaf spot (Septoria)
FBADMCO Ray blight (Mycosphaerella)
(1 lb/gal FlC)
000769-00489

/34058AA Firethorn
FEAJFAM Scab (Fusicladium)
(1 lb/gal FlC)
000769-00489

/34052AA Flowering Almond
FBADMCB Brown rot blossom/twig blight (Monilinia)
(1 lb/gal FlC)
000769-00489

/35056AA Flowering Crabapple
FJAFGBI Cedar-apple rust (Gymnosporangium)
FMBCSCM Leaf spot (Sphaeropsis)
FEAJVAG Scab (Venturia)
(26.5% WP)
000538-00134

(1 lb/gal FlC)
000769-00489

/35057AA	**Flowering Dogwood**
FMBCSBL	Leaf spot (Septoria)
	(1 lb/gal FlC)
	000769-00489
/34061AA	**Flowering Quince**
FBADMCB	Brown rot blossom/twig blight (Monilinia)
	(1 lb/gal FlC)
	000769-00489
/31108AA	**Geranium**
FBAPBAW	Gray mold blight (Botrytis)
FJAAQBB	Rust
	(5% D)
	007401-00331 000769-00525
	(26.5% WP)
	000538-00134
	(36% WP)
	007764-00041
	(50% WP)
	000004-00290 007401-00330
	(75% WP)
	000004-00289 000829-00232 007764-00028
	(5% WP/D)
	007764-00024
	(0.4 lb/gal FlC)
	001769-00251
	(1 lb/gal FlC)
	000769-00489
	(1.06 lb/gal FlC)
	005719-00077
	(1.1 lb/gal FlC)
	007401-00065
	(1.14 lb/gal FlC)
	006993-00061
	(2.88 lb/gal FlC)
	000239-02438

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

/31111AA Gladiolus
FMCDBAW Botrytis leaf and flower spot
FMCDCFH Curvularia leaf and flower spot
(1 lb/gal FlC)
000769-00489

/34066AA Hawthorn
FBATFAA Leaf blight (Fabrea)
FJAFGBI Rust (Gymnosporangium)
(1 lb/gal FlC)
000769-00489

/31121AA Hollyhock
FJAAQBB Rust
(1 lb/gal FlC)
000769-00489

/31126AA Iris
FBADBAW Botrytis blossom blight
FMBCDBD Leaf spot (Didymellina)
(5% D)
007401-00331 000769-00525

(26.5% WP)
000538-00134

(36% WP)
007764-00041

(50% WP)
000004-00290 007401-00330

(75% WP)
000004-00289 007764-00028

(5% WP/D)
007764-00024

(0.4 lb/gal FlC)
001769-00251

(1 lb/gal FlC)
000769-00489

(1.06 lb/gal FlC)
005719-00077

(1.1 lb/gal FlC)
007401-00065

	Iris (continued)
	(1.14 lb/gal FlC)
	006993-00061
	(2.88 lb/gal FlC)
	000239-02438
/34078AA	Japanese Andromeda
FDACPCN	Phytophthora dieback
	(1 lb/gal FlC)
	000769-00489
/39010AA	Leatherleaf Fern
FBAAACC	Ascochyta blight
FMBCCBM	Leaf spot (Cercospora)
FMBCCFO	Leaf spot (Cylindrocladium)
FBAARAM	Rhizoctonia blight
	(50% WP)
	000004-00290
	(75% WP)
	000004-00289
	(1 lb/gal FlC)
	000769-00489
	(1.06 lb/gal FlC)
	005719-00077
/34088AA	Ligustrum
FMBCCBM	Leaf spot (Cercospora)
	(1 lb/gal FlC)
	000769-00489
/31131AA	Lilies
FBAPBAW	Gray mold blight (Botrytis)
	(1 lb/gal FlC)
	000769-00489
/31141AA	Moses-in-the-cradle
FMBSCFH	Tan leaf spot (Curvularia)
	(50% WP)
	000004-00290

Moses-in-the-cradle (continued)

(75% WP)
000004-00289   000677-00444

(1 lb/gal FlC)
000769-00489

/34097AA Mountain-laurel
FMBCCBM Leaf spot (Cercospora)
(1 lb/gal FlC)
000769-00489

/34103AA Oregongrape
FJAAQBB Rust
(1 lb/gal FlC)
000769-00489

/30002AA Ornamental and Forest Tree Conifers
FBAVLBK Lophodermium needle cast
FDAGPBS Phoma twig canker
FMAJSAJ Scirrhia brown spot
FDAGSAL Scleroderris canker
FBBGSBS Sirococcus tip blight
(26.5% WP)
000538-00134

/31154AA Petunias
FIAXPCN Crown rot (Phytophthora)
FBAABAW Botrytis blight
(1 lb/gal FlC)
000769-00489

/31155AA Philodendron
FMBCDAB Leaf spot (Dactylaria)
FBAAPCN Phytophthora blight
(50% WP)
000004-00290

(75% WP)
000004-00289

(1 lb/gal FlC)
000769-00489

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

Philodendron (continued)

(1.06 lb/gal FlC)
005719-00077

(1.14 lb/gal FlC)
006993-00061

/34402AA Purpleleaf Sand Cherry
FBADMCB Brown rot blossom/twig blight (Monilinia)
(1 lb/gal FlC)
000769-00489

/34118AA Rhododendron Hybrids/Cultivars
FBADOAV Ovulinia petal blight
FDACPCN Phytophthora dieback
(1 lb/gal FlC)
000769-00489

/34120AA Rose
FMAEDBS Black spot (Diplocarpon)
FBADBAW Botrytis blossom blight
FFACSCO Powdery mildew (Sphaerotheca) [suppression]
(5% D)
007401-00331 000769-00525

(26.5% WP)
000538-00134

(36% WP)
007764-00041

(50% WP)
000004-00290 007401-00330

(75% WP)
000004-00289 000829-00232 007764-00028

(5% WP/D)
007764-00024

(3.75% EC)
007401-00062

(6% EC)
007401-00067

(0.4 lb/gal FlC)
001769-00251

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

Rose (continued)

(1 lb/gal FlC)
000769-00489

(1.06 lb/gal FlC)
005719-00077

(1.1 lb/gal FlC)
007401-00065

(1.14 lb/gal FlC)
006993-00061

(2.88 lb/gal FlC)
000239-02438 007401-00340

/34137AA Viburnum
FFACMBT Powdery mildew (Microsphaera)
(1 lb/gal FlC)
000769-00489

/31213AA Zinnia
FFACEBJ Powdery mildew (Erysiphe)
(5% D)
007401-00331 000769-00525

(26.5% WP)
000538-00134

(50% WP)
000004-00290 007401-00330

(75% WP)
000004-00289 000829-00232

(0.4 lb/gal FlC)
001769-00251

(1 lb/gal FlC)
000769-00489

(1.06 lb/gal FlC)
005719-00077

(1.1 lb/gal FlC)
007401-00065

Zinnia (continued)

(1.14 lb/gal FlC)
006993-00061

(2.88 lb/gal FlC)
000239-02438 007401-00340

(Wood or Wood Structure Protection Treatments)

/64000NB
FYAEQBB

Wood Protection Treatment to Existing Buildings or Parts of Buildings
Wood decay fungi

(0.42% RTU)
000200-00095

(0.45% RTU)
000200-00090 000200-00094

(0.47% RTU)
000200-00093 000200-00096 000200-00097 000200-00098

(0.48% RTU)
000200-00087 000200-00088 000200-00091 000200-00092

(0.49% RTU)
000200-00089

(0.67% RTU)
000200-00078

(0.68% RTU)
000200-00076 000200-00079 000200-00080 000200-00081
000200-00083

(0.69% RTU)
000200-00077 000200-00082

(0.7% RTU)
000200-00074 000200-00075 000200-00084 000200-00085
000518-00069

(0.71% RTU)
000200-00086

/64003NB
FYAEQBB

Wood Protection Treatment to Finished Wood Products

Wood decay fungi

(0.42% RTU)
000200-00095

(0.45% RTU)
000200-00090 000200-00094

(0.47% RTU)
000200-00093 000200-00096 000200-00097 000200-00098

(0.48% RTU)
000200-00087 000200-00088 000200-00091 000200-00092

(0.49% RTU)
000200-00089

(0.67% RTU)
000200-00078

(0.68% RTU)
000200-00076 000200-00079 000200-00080 000200-00081
000200-00083

(0.69% RTU)
000200-00077 000200-00082

(0.7% RTU)
000200-00074 000200-00075 000200-00084 000200-00085
000518-00069

(0.71% RTU)
000200-00086

GENERAL WARNINGS AND LIMITATIONS (continued)

Agricultural Crop Tolerances (other than those listed in the text):
Banana - 0.5 ppm (not more than 0.05 ppm in edible pulp)

Definition of Terms:
MAI - Multiple active ingredient(s)
a.i. - active ingredient
Chemical names used in the Formulated with statements are the Common Names as listed in Appendix A immediately following the Listing of Registered Pesticide Products by Formulation.
*Tablespoons (tbls) actual: A hypothetical quantity computed by multiplying the number (or equivalent number) of tablespoons of product by the concentration of chlorothalonil in the formulation.

TERRESTRIAL FOOD CROP

(Agricultural Crops)

General Warnings and Limitations: Do not use on greenhouse agricultural crops (see GREENHOUSE FOOD CROP for the use of special formulations on tomato).
Apply in sufficient water to obtain adequate coverage, usually 20 to 150 gallons per acre for dilute sprays and 5 to 10 gallons per acre for concentrate ground sprays and aircraft applications. Apply by ground equipment or aircraft unless specified otherwise. Application may also be made through center pivot, traveling gun, solid set or portable wheel move sprinkler irrigation equipment. Flowable concentrate labeling recommends the use of solid set, portable wheel move or center pivot systems for carrots, celery, cucumber, melons, potato, pumpkin, soybeans and squash, and all 4 types of sprinkler irrigation equipment for peanuts. Refer to labeling for application and calibration techniques.
Do not operate irrigation system without safety valves or other devices to prevent back-siphoning of active ingredient into water source. Irrigation water treated with chlorothalonil should be maintained on the treated area until the water is absorbed by the soil. Tank containing chlorothalonil should be connected to the discharge side of irrigation pump or other pressurized equipment attached to irrigation line.

CHLOROTHALONIL

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/05001AA	Apricot		0.5 ppm Do not apply after shuck split through 4.17 pounds per acre. Apply with ground equipment using 300 gallons per acre for dilute sprays or 50 to 150 gallons per acre for concentrate sprays. Use only full dilute spray volumes for dormant applications. When concentrate sprays are used or when treating non-bearing or immature trees, the lower dose rate may be used.
/05003AA	Nectarine		
/05004AA	Peach		
FBADMCB	Brown rot blossom and twig blight (Monilinia)	2.34-4.17 lb/A or 0.78-1.04 lb/100 gal (4.17 lb/gal F1C) OR MAI 2.34-4.17 lb/A or 0.78-1.04 lb/100 gal (2.08 lb/gal F1C)	Dormant, delayed dormant, and foliar applications. For Coryneum blight and leaf curl, apply 2.34 to 4.17 pounds per acre. Make 1 application in late autumn to early winter before hard freezing occurs. Make 1 or 2 additional applications in mid to late winter before buds begin to swell. Where Coryneum blight occurs, apply once at petal fall or at shuck split to prevent fruit infections. For brown rot blossom blight, apply 3.13 to 4.17 pounds per acre on trees taller than 20 feet, and 2.34 to 3.13 pounds per acre on smaller trees. Make 1 application at popcorn (pink, red or early white bud) and a second at full bloom. If conditions favor disease development, make an additional application at petal fall. For scab, in addition to the bloom sprays above, apply 2.34 to 3.13 pounds per acre at shuck split. OR MAI Formulated with sulfur.
FBAZCEL	Coryneum blight (shothole)		
FEAGTAB	Leaf curl (Taphrina) (on nectarine and peach)		
FEAJCCV	Scab (Cladosporium)		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/15001AA	Beans (dry) (Blackeye, Kidney, Lima, Navy, Pinto)		0.1 ppm 6 week preharvest interval through 1.56 pounds per acre. Do not allow livestock to graze in treated areas or feed treated plant parts to livestock. For use only on beans harvested dry with pods removed.
FAAACDP	Anthracnose (Colletotrichum)	1.04-1.56 lb/A (4.17 lb/gal FlC)	Foliar application. Apply during early bloom stage. Repeat at 7 to 10 day intervals.
FMBCCBM	Cercospora leaf spot [blackeye only]		
FFABPAU	Downy mildew (Peronospora)		
FJAAUAH	Rust (Uromyces)		
/15003AA	Beans, Snap		5 ppm 7 day preharvest interval through 2.25 pounds per acre. Do not graze treated areas or feed treated plant parts to livestock.
FJAAUAH	Rust (Uromyces)	1.04-2.25 lb/A (4.17 lb/gal FlC) (50-75% WP) or 0.08-0.09 oz/100 sq.ft or 0.25-0.5 tbls actual*/100 sq.ft or 0.23 oz/gal or 1.5-2.25 tbls actual*/gal (1-2.88 lb/gal FlC) (50-75% WP) or -- (5% D) or	Foliar application. Apply during early bloom stage or when disease first threatens. Repeat at weekly intervals or as needed to maintain control. OR MAI Formulated with sulfur.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Beans, Snap (continued)		
		OR MAI 1.04-2.08 lb/A (2.08 lb/gal F1C)	
FBAPBAW	Gray mold blight (Botrytis)	2.215 lb/A (4.17 lb/gal F1C)	Apply as directed above.
/22026BA /22035BA /33019BA /33043BA	Bluegrass (seed crop) Perennial Ryegrass (seed crop)		Do not apply within 14 days of harvest. Do not allow livestock to graze in treated areas. Do not feed hay or threshings from treated fields to livestock.
FJAGPEJ FJAMPEJ FJANPEJ	Rust (Puccinia) Stem rust (Puccinia) Stripe rust (Puccinia)	0.75-1.125 lb/A (4.17 lb/gal F1C) (75% WP)	Foliar application. Apply at the time of seed head elongation (early to mid-April) or when conditions favor disease development. Repeat at 7 to 10 day intervals or as needed to maintain control. Apply low rate under a light incidence of rust. Under severe disease conditions, apply the rate at 7 day intervals.
/13005AA /13006AA /13007AA /13008AA	Broccoli Brussels Sprouts Cabbage Cauliflower		5 ppm No preharvest interval through 1.5 pounds per acre.
FFABPAU FMBCAAX	Downy mildew (Peronospora) Leaf spot (gray leaf spot) (Alternaria)	1.125-1.17 lb/A (4.17 lb/gal F1C) (50-75% WP) or 0.0375-0.045 oz/100 sq.ft or (1-2.88 lb/gal F1C) (50-75% WP) or	Foliar application. Apply after transplants are set in the field or shortly after emergence of field-seeded crop or when conditions favor disease development. Repeat at 7 to 10 day intervals or as needed to maintain control. OR MAI Formulated with sulfur.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Broccoli cluster (continued)		
		0.15-0.25 tbls actual* /100 sq.ft or 0.125 oz/gal or 0.75-2.25 tbls actual*/gal (1-2.88 lb/gal FlC) (50-75% WP) or — (5% D) OR MAI 1.17 lb/A (2.08 lb/gal FlC)	
/13006AA	(Brussels Sprouts)		
FMBMMCO	Ringspot (Mycosphaeralla)	1.43-1.5 lb/A (4.17 lb/gal FlC) (75% WP) or 0.06 oz/100 sq.ft (2.88 lb/gal FlC) OR MAI 1.43 lb/A (2.08 lb/gal FlC)	Use limited to CA. Foliar application. Apply to field-seeded brussels sprouts at the time of early sprout development or when conditions favor disease development. Repeat at 7 to 10 day intervals or as needed to maintain control. OR MAI Formulated with sulfur.
	Brussels Sprouts	See Broccoli cluster.	
	Cabbage	See Broccoli cluster.	
/28073AA	Carrots		1 ppm No preharvest interval through 1.5 pounds per acre.
FBAMCBM	Early blight (Cercospora)	1.125-1.5 lb/A (4.17 lb/gal FlC) (50-75% WP) or	Foliar application. Apply when disease threatens. Repeat at 7 to 10 day intervals or as needed to maintain control.
FBASAAX	Late blight (Alternaria)		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Carrots (continued)		
		or 0.0375-0.06 oz/100 sq.ft or 0.15-0.35 tbls actual* /100 sq.ft or 0.125-0.145 oz/gal or 1.5-2.25 tbls actual*/gal (1-2.88 lb/gal F1C) (50-75% WP) or — (5% D)	
	Cauliflower	See Broccoli cluster.	
/28003AA	Celery		15 ppm 7 day preharvest interval through 2.25 pounds per acre.
FICXRAM	Basal stalk rot (Rhizoctonia)	0.75-1.125 lb/A or 1.5-2.25 lb/A (4.17 lb/gal F1C) (50-75% WP) or 0.025-0.0825 oz/100 sq.ft or 0.15-0.5 tbls actual*/100 sq.ft (2.88 lb/gal F1C) (50-75% WP)	Foliar application. Apply when transplants are set in field. Apply 0.75 to 1.125 pounds per acre at 3 to 5 day intervals or 1.5 to 2.25 pounds per acre at 7 day intervals. For pink rot suppression, apply 2.215 to 2.25 pounds per acre at 7 day intervals.
FBAMCBM	Early blight (Cercospora)		
FBASSBL	Late blight (Septoria)		
FIBTSAQ	Pink rot (Sclerotinia) [suppression]		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Celery (continued)		
	(Plant Beds)		
FBAMCBM	Early blight (Cercospora)	1.125-1.5 lb/100 gal [125 gal/A] (4.17 lb/gal FlC) (50-75% WP) or 0.0375-0.0685 oz/100 sq.ft (50-75% WP) or 1-1.65 tbls actual*/gal (50-75% WP)	Foliar application to plant beds. Apply shortly after emergence. Apply twice weekly or as needed to maintain control. Use high rate under severe disease conditions.
FBASSBL	Late blight (Septoria)		
/05002AA	Cherry (sweet and sour)		0.5 ppm Do not apply after shuck split through 4.17 pounds per acre. Postharvest application through 3.13 pounds per acre. Apply with ground equipment to sour cherries using 300 gallons per acre for dilute sprays or 50 to 150 gallons per acre for concentrate sprays; for sweet cherries, use 400 gallons and 65 to 200 gallons per acre, respectively. When concentrate sprays are used or when treating non-bearing or immature trees, the lower dose rate may be used.
FBADMCB	Brown rot blossom and twig blight (Monilinia)	2.34-4.17 lb/A or 0.78-1.04 lb/100 gal (4.17 lb/gal FlC) OR MAI 2.34-4.17 lb/A or 0.78-1.04 lb/100 gal (2.08 lb/gal FlC)	Delayed dormant, foliar, and postharvest applications. For brown rot blossom blight, apply 3.13 to 4.17 pounds per acre on trees taller than 20 feet, and 2.34 to 3.13 pounds per acre on smaller trees. Make 1 application at popcorn (pink, red or early white bud) and a second at full bloom. If conditions favor disease development, make an additional application at petal fall. For leaf spot, in addition to the bloom sprays above, apply 2.34 to 3.13 pounds per acre at shuck split.
FMBCCDJ	Cherry leaf spot (Coccomyces)		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Cherry (sweet and sour) (continued)		
			For control of leaf spot after harvest, apply 1 time to foliage at 2.34 to 3.13 pounds per acre within 7 days after fruit is removed. In orchards with a history of high leaf spot incidence, make a second application 10 to 14 days later. OR MAI Formulated with sulfur.
/15005AA /28005CA	Corn, Sweet Corn (seed crop)		1 ppm (kernel plus cob with husk removed) 14 day preharvest interval through 1.5 pounds per acre. Do not apply to sweet corn to be processed. Do not allow livestock to graze in treated areas. Do not ensile treated corn or use as livestock forage.
FBATHAM	Northern and Southern corn leaf blights (Helminthosporium)	0.59-1.5 lb/A (4.17 lb/gal FlC) (50-75% WP) or 0.0375-0.06 oz/100 sq.ft or 0.15-0.35 tbls actual* /100 sq.ft or 0.125-0.145 oz/gal (1-2.88 lb/gal FlC) (50-75% WP) or -- (5% D)	Foliar application. Apply when conditions favor disease development. Repeat at 4 to 7 day intervals or as needed to maintain control. Under severe disease conditions apply a minimum of 1.17 pounds per acre.
FJAAPEJ	Common corn rust (Puccinia)	0.59-1.43 lb/A (4.17 lb/gal FlC)	Apply as above.
	Corn (seed crop)	See Corn, Sweet cluster.	

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/28007AA	Cotton (seed treatment)		Seed treatment through 1.2 ounces per 100 pounds of seed.
FKAFRAM	Seed and seedling diseases (Rhizoctonia)	Acid delinted: 0.8 oz/100 lb seed or Machine delinted: 1.2 oz/100 lb seed (40% WP)	Seed treatment. Apply as a slurry in sufficient water to provide uniform coating of seed. Formulated with fenaminosulf.
/10010AA	Cucumber		5 ppm No preharvest interval through 2.25 pounds per acre. Single application at vine formation through 6.255 pounds per acre.
FAAACDP	Anthracnose (Colletotrichum)	1.125-2.25 lb/A (4.17 lb/gal FlC) (50-75% WP) or 0.0375-0.09 oz/100 sq.ft or 0.15-0.5 tbls actual*/100 sq.ft or 0.125-0.23 oz/gal or 1.5-2.25 tbls actual*/gal (1-2.88 lb/gal FlC) (50-75% WP) or -- (5% D)	Foliar application. Apply when plants are in first true leaf stage or when conditions are favorable for disease development. Repeat at 7 day intervals. Shorten interval under severe disease conditions. For anthracnose, downy mildew, and target spot, apply 1.125 to 1.5 pounds per acre. For gummy stem blight, leaf blight, powdery mildew, and scab, apply 1.43 to 2.25 pounds per acre. For suppression of belly rot, apply 2.215 to 2.25 pounds per acre.
FIACRAM	Belly rot of fruit (Rhizoctonia) [suppression]		
FFABPEA	Downy mildew (Pseudoperonospora)		
FBAQMCO	Gummy stem blight (Mycosphaeralla)		
FBATAAX	Leaf blight (Alternaria)		
FFACEBJ	Powdery mildew (Erysiphe) [except Southwestern states]		
FEAJCCV	Scab (Cladosporium)		
FMBCCEK	Target leaf spot (Corynespora)		
FIACRAM	Belly rot of fruit (Rhizoctonia)	6.255 lb/A (4.17 lb/gal FlC)	Foliar application. Make a single application when vines begin to form.

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/14007AA	Garlic		0.5 ppm - garlic 5 ppm - leek, shallot Garlic: 7 day preharvest interval through 2.215 pounds per acre. Leek, shallot: 14 day preharvest interval through 2.215 pounds per acre. Do not apply more than 3 times per season.
/14010AA	Leek		
/14011BA	Onion (seed crop)		
/14017AA	Shallot		
FMAHBAW	Botrytis leaf blast	1.04-2.215 lb/A (4.17 lb/gal F1C)	Foliar application. Apply at first sign of disease or when dew or rain occurs. Repeat at 7 to 10 day intervals for as long as conditions favor disease development. When heavy dew or rain persists, apply the high rate at 7 day intervals.
FFABPAU	Downy mildew (Peronospora)		
FCAEAAX	Purple blotch (Alternaria)		
	Leek	See Garlic cluster.	
/10001AA	Melons		5 ppm No preharvest interval through 2.25 pounds per acre.
/10011AA	Pumpkin		
/10012AA	Squash (summer and winter)		
FAAACDP	Anthracnose (Colletotrichum)	1.125-2.25 lb/A (4.17 lb/gal F1C) (50-75% WP) or 0.0375-0.086 oz/100 sq.ft or 0.15-0.5 tbls actual*/100 sq.ft or 0.125-0.23 oz/gal or 1.5-2.25 tbls actual*/gal (1-2.88 lb/gal F1C) (50-75% WP) or -- (5% D)	Foliar application. Apply when plants are in first true leaf stage or when conditions favor disease development. Repeat at 7 day intervals. Shorten interval under severe disease conditions. For anthracnose and downy mildew, apply 1.125 to 1.5 pounds per acre.
FMBCCBM	Cercospora leaf spot		
FFABPEA	Downy mildew (Pseudoperonospora)		
FBAQMCO	Gummy stem blight (Mycosphaeralla)		
FBATAAX	Leaf blight (Alternaria)		
FFACEBJ	Powdery mildew (Erysiphe) [except Southwestern states]		
FEAJCCV	Scab (Cladosporium)		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/28012AA	Mint		2 ppm mint hay 80 day preharvest interval through 1.04 pounds per acre. Do not apply more than 3 times per season. Do not feed fresh or extracted mint hay from treated fields to livestock.
FJAAPEJ FMBCSBL	Rust (Puccinia) Septoria leaf spot	1.04 lb/A (4.17 lb/gal F1C)	Use limited to IN, MI, and WI. Foliar application. Apply when emerging plants are 4 to 8 inches high. Repeat at 7 to 10 day intervals or as needed to maintain control.
	Nectarine	See Apricot cluster.	
/14011AA /16004AA	Onion (dry bulb) Onion (green)		0.5 ppm - dry bulb 5 ppm - green Dry bulb onion: 7 day preharvest interval through 2.25 pounds per acre. Do not apply to sweet Spanish onions. Green onions: 14 day preharvest interval through 2.25 pounds per acre. Do not apply more than 3 times per season.
FMAHBAW FFABPAU FCAEAAX	Botrytis leaf blast Downy mildew (Peronospora) Purple botch (Alternaria)	1.04-2.25 lb/A (4.17 lb/gal F1C) (50-75% WP) or 0.0375-0.0825 oz/100 sq.ft or 0.25-0.5 tbls actual*/100 sq.ft or 0.125-0.23 oz/gal (1 lb/gal F1C) (50-75% WP)	Foliar application. Apply at first sign of disease or when dew or rain occurs. Repeat at 7 to 10 day intervals for as long as conditons favor disease development. When heavy dew or rain persists, apply the high rate at 7 day intervals.
	Onion (seed crop)	See Garlic cluster.	

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/06010AA	**Papaya**		15 ppm No preharvest interval through 3.0 pounds per acre. Do not graze livestock in treated area or feed processing by-products to livestock.
FAAACDP	Anthracnose (Colletotrichum)	1.56-3.0 lb/A (4.17 lb/gal FlC)	Foliar application. Apply with ground equipment only. Apply when conditions favor disease development. Repeat at 14 day intervals until weather conditions no longer favor disease development.
FMAWAAX	Fruit spot (Alternaria)		
FICIPCN	Stem-end rot (Phytophthora)		
/14012AA	**Parsnip**		1 ppm (root) 10 day preharvest interval through 1.56 pounds per acre. Do not apply more than 4 times per season. Do not feed treated plant parts to livestock.
FMBCAAX	Alternaria leaf spot	1.04-1.56 lb/A (4.17 lb/gal FlC)	Foliar application. Apply at the first sign of disease or when conditions are favorable for infection. Repeat at 7 to 10 day intervals.
FAAACFP	Anthracnose (Cylindrosporium)		
FIAABAW	Botrytis blight (gray mold)		
FIAMRAM	Bottom rot (Rhizoctonia)		
FFABPCV	Downy mildew (Plasmopara)		
/06014AA	**Passion Fruit**		3 ppm No preharvest interval through 1.43 pounds per acre. Do not graze treated area or feed vines or processing by-products to livestock used for food.
FMAWAAX	Alternaria fruit spot	1.43 lb/A (4.17 lb/gal FlC)	Use limited to HI. Foliar application. Apply for thorough coverage of fruit and leaves when fruit spots appear (April to July). Repeat at 14 day intervals until weather conditions no longer favor disease development.
	Peach	See Apricot cluster.	

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/28015AA	**Peanuts**		0.3 ppm 14 day preharvest interval through 1.125 pounds per acre. Do not allow livestock to graze treated areas. Do not feed hay or threshings from treated fields to livestock.
FMBCCBM FMBCCBO FJAGPEJ	Early leaf spot (Cercospora) Late leaf spot (Cercosporidium) Rust (Puccinia)	0.075-1.125 lb/A (4.17 lb/gal F1C) (50-75% WP) or 0.025-0.04 oz/100 sq.ft or 0.15-0.25 tbls actual*/100 sq.ft or 0.078-0.11 oz/gal (1 lb/gal F1C) (50-75% WP) OR MAI 1.11 lb/A (2.08 lb/gal F1C)	Foliar application. Apply when disease first appears. Repeat at 10 to 14 day intervals or as needed to maintain control. Apply at the high rate under severe disease conditions. Apply 1.11 pounds per acre in sprinkler irrigation equipment. OR MAI Formulated with sulfur.
FCAJACC	Web blotch (Ascochyta)	1.11 lb/A (4.17 lb/gal F1C) OR MAI 1.11 lb/A (2.08 lb/gal F1C)	Apply as above. OR MAI Formulated with sulfur.
	Perennial Ryegrass	See Bluegrass cluster.	

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/05005AA /05006AA	Plum Prune		0.2 ppm Do not apply after shuck split through 4.17 pounds per acre. Apply with ground equipment using 300 gallons per acre for dilute sprays or 50 to 150 gallons per acre for concentrate sprays. When concentrate sprays are used or when treating non-bearing or immature trees, the lower dose rate may be used.
FBADMCB	Brown rot blossom and twig blight (Monilinia)	2.34-4.17 lb/A or 0.78-1.04 lb/100 gal (4.17 lb/gal F1C) OR MAI 2.34-4.17 lb/A or 0.78-1.04 lb/100 gal (2.08 lb/gal F1C)	Delayed dormant and foliar applications. For brown rot blossom blight, apply 3.13 to 4.17 pounds per acre on trees taller than 20 feet, and 2.34 to 3.13 pounds per acre on smaller trees. Make 1 application at popcorn (pink, red or early white bud) and a second at full bloom. If conditions favor disease development, make an additional application at petal fall. OR MAI Formulated with sulfur.
/14013AA	Potato		0.1 ppm No preharvest interval through 1.125 pounds per acre.
FICMBAW FBAMAAX FBASPCN	Botrytis vine rot Early blight (Alternaria) Late blight (Phytophthora)	0.59-1.125 lb/A (4.17 lb/gal F1C) (50-75% WP) or 0.025-0.045 oz/100 sq.ft 0.1-0.25 tbls actual*/100 sq.ft (1-2.88 lb/gal F1C) (50-75% WP) or	Foliar application. Apply 0.75 to 1.125 pounds per acre (lower rates may be used in drier conditions for late blight). Apply when plants are 6 to 8 inches high or when disease threatens. Repeat at 7 to 10 day intervals or as needed to maintain control. Do not exceed a 10 day interval when applying by sprinkler irrigation equipment. Under severe disease conditions, apply high rate at 7 day intervals. OR MAI Formulated with sulfur.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Potato (continued)		
		0.078-0.11 oz/gal or 1.5-2.25 tbls actual*/gal (1-2.88 lb/gal F1C) (50-75% WP) or -- (5% D) OR MAI 0.65-1.11 lb/A (2.08 lb/gal F1C)	
	Prune	See Plum cluster.	
	Pumpkin	See Melons cluster.	
	Shallot	See Garlic cluster.	
/28023AA	Soybeans		0.2 ppm 6 week preharvest interval through 1.82 pounds per acre. Do not allow livestock to graze treated areas. Do not feed soybean hay or threshings from treated fields to livestock.
FAAAGAP	Anthracnose (Glomerella)	Two application program: 1.04-1.82 lb/A or Three application program: 0.78-1.43 lb/A (4.17 lb/gal F1C)	Foliar application. Use the 3 application program in areas having a history of moderate to severe disease intensity. Applications for either program should be made at 14 day intervals. Determinate (southern) soybean varieties: Two application program - Make the first application at early pod set (R3 stage, when majority of pods are 0.125 to 0.375 inch in length) and the second at beginning of seed formation (R5) which occurs about 14 days later.
FBAYDAP	Diaporthe pod and stem blight		
FMAVCBM	Frogeye leaf spot (Cercospora)		
FKACCBM	Purple seed stain (Cercospora)		
FMAJSBL	Septoria brown spot		

Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations

Soybeans (continued)

Three application program - Make the first application at the beginning of flowering (R1), the second at early pod set (R3), and the third at beginning of seed formation (R5).

Indeterminate (northern) soybean varieties:

Two application program - Make the first application when the largest pods are 1 to 1.5 inches in length. Make the second application 14 days later.

Three application program - Make the first application 1 week after first flowering and repeat at 14 day intervals.

Tank mix for indeterminate (northern) soybean varieties: Chlorothalonil may be tank mixed at 0.78 pound per acre with benomyl (4 ounces active ingredient). Make the first application when pods near the top of plants are 0.5 to 1 inch in length and a second application 14 days later.

Squash (summer and winter)

See Melons cluster.

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/11005AA	Tomato		5 ppm No preharvest interval through 2.25 pounds per acre.
FAAACDP	Anthracnose (Colletotrichum)	1.125-2.25 lb/A (4.17 lb/gal FlC) (50-75% WP) or 0.0375-0.09 oz/100 sq.ft or 0.1-0.5 tbls actual*/100 sq.ft or 0.125-0.23 oz/gal or 1.5-2.25 tbls actual*/gal (1-2.88 lb/gal FlC) (50-75% WP) or — (5% D) OR MAI 1.17-2.21 lb/A (2.08 lb/gal FlC)	Foliar application. Apply when disease threatens. For all diseases except black mold, apply when disease threatens. Repeat at 7 to 10 day intervals. For all diseases when severe disease conditions exist, apply the higher rate and shorten spray interval. For early blight, late blight, gray leaf spot, gray mold blight, and Septoria leaf spot, apply 1.125 to 1.5 pounds per acre. For anthracnose, apply 1.5 to 2.25 pounds per acre. For Rhizoctonia fruit rot and Botrytis gray mold, apply at the highest rate. For black mold rot, use 1.56 to 2.215 pounds per acre making 3 applications beginning 5 to 6 weeks before harvest. Repeat at 10 to 14 day intervals. For bacterial spot, chlorothalonil may be tank mixed with 'copper'. Do not mix with copper ammonium carbonate in concentrated spray suspensions. OR MAI Formulated with sulfur.
FFAGAAX	Black mold rot (Alternaria)		
FBAMAAX	Early blight (Alternaria)		
FIBFRAM	Fruit rot (Rhizoctonia)		
FMAXSDG	Gray leaf spot (Stemphylium)		
FBAPBAW	Gray mold blight (Botrytis)		
FBASPCN	Late blight (Phytophthora)		
FHAGCCV	Leaf mold (Cladosporium)		
FMBCSBL	Septoria leaf spot		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	TERRESTRIAL NON-FOOD CROP		
	(Ornamental Plants and Forest Trees)		
	(Lawns and Turf (including ground covers))		
/33019BA	Bluegrass (seed crop)	Refer to TERRESTRIAL FOOD CROP, Bluegrass (seed crop), for use and limitation information.	
/33028AA	Dichondra		Apply sprays in 2 to 15 gallons per 1,000 square feet. Apply granular formulations to damp dichondra.
FMBCAAX	Alternaria leaf spot	2.88-6.6 oz/1,000 sq.ft (1.06-4.17 lb/gal F1C) (50-75% WP) (5-11.25% G) or 4.01-8.01 oz/1,000 sq.ft (9.5% G)	Use limited to CA. Foliar application. As a preventive, apply lower half of dose range using the lesser rates for light to moderate conditions and the higher rates when conditions are severe. Apply at 7 to 14 day intervals. As a curative, apply upper half of dose range using the higher rates under severe disease conditions. Apply at 7 day intervals.
FAAAGAN	Anthracnose (Gloeosporium)		
/33007AA	Golf Course Turf (fairways)		
FBAHRAM	Brown patch (Rhizoctonia)	2.06-7.5 lb/A (4.17 lb/gal F1C) (50-75% WP)	Foliar. Apply in 30 to 40 gallons per acre. Apply when conditions favor disease development. Repeat as long as conditions persist. Under severe disease conditions use the highest rate and shortest interval as follows: For dollar spot, apply 2.06 to 4.17 pounds per acre at 7 to 10 day intervals or 3.75 to 7.5 pounds per acre at 14 to 21 day intervals. For brown patch, apply 3.75 to 7.5 pounds per acre at 7 to 14 day intervals. For Helminthosporium leaf spot, apply 4.125 to 4.17 pounds per acre at 7 to 10 day intervals or 3.75 to 7.5 pounds per acre at 14 to 21 day intervals.
FMAQSAQ	Dollar spot (Sclerotinia)		
FMBCHAM	Leaf spot (Helminthosporium)		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Golf Course Turf (continued)		
			Begin after first or second cutting and repeat as long as conditions favor disease development.
/33008AA	Ornamental Turf (golf course greens and trees, grass tennis courts, lawns, parks)		Do not graze treated areas. Do not feed clippings to livestock. Do not mow or water after treatment until lawn is thoroughly dry, preferably for 24 hours. Apply sprays in 2 to 15 gallons per 1,000 square feet. Apply granular formulations to damp lawn or turf. Apply dust thoroughly for 6 inches around affected area.
FBAHRAM	Brown patch (Rhizoctonia)	1.44-6.6 oz/1,000 sq.ft (0.4-4.17 lb/gal FlC) (50-75% WP) (2.5-11.25% G) or — (5% D) or 4.01-8.01 oz/1,000 sq.ft (9.5% G)	Foliar application. As a preventive, apply lower half of dose range using the lesser rates for light to moderate conditions and the higher rates when conditions are severe. Apply at 7 to 14 day intervals. As a curative, apply upper half of dose range using the higher rates under severe disease conditions. Apply at 7 day intervals. A 75 percent wettable powder formulation (Reg. No. 007764-00028) may be tank mixed with chlordane, technical.
FMAPRAE	Copper spot (Ramulispora)		
FBATCFH	Curvularia (including blight, fading out, going out, leaf spot)		
FMAQSAQ	Dollar spot (Sclerotinia)		
FMAXPCR	Gray leaf spot (Piricularia)		
FMBCHAM	Leaf spot (Helminthosporium)		
FBATHAM	Melting out (Helminthosporium)		
FBAXCEF	Red thread (Corticium)		
FJAMPEJ	Stem rust of bluegrass (Puccinia)		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Ornamental Turf (continued)		
FHAJTCB	Gray snow mold (Typhula)	4.125-8.25 oz/1,000 sq.ft (4.17 lb/gal FlC) (75% WP)	Foliar application. Apply in autumn before snow cover. Apply the higher rate if turf layer remains frozen prior to snow cover. If snow cover is intermittent or lacking during the winter, repeat at low rate at monthly intervals until conditions favorable for disease development no longer persist. For pink snow-mold, use low rate and tank mix with benomyl (1 ounce a.i.) or 3-(3,5-dichlorophenyl)-N-(1-methylethyl)-2,4-dioxo-1-imidazolidinecarboximide (2 ounces a.i.).
		4.8 oz/1,000 sq.ft (2.5-5% G)	Use limited to OR and WA. Foliar application. Apply in the fall. Repeat at 7 to 14 day intervals as needed.
/33043BA	Perennial Ryegrass (seed crop)		

Refer to TERRESTRIAL FOOD CROP, Bluegrass (seed crop), for use and limitation information.

(Ornamental Plants (herbaceous plants and bulbs; woody shrubs, trees and vines))

General Warnings and Limitations: Make initial application as indicated for each host/disease below. Repeat at 7 to 14 day intervals until conditions are no longer favorable for disease development. During periods when conditions favor severe disease incidence (generally cloudy or wet weather) apply the higher rate at the shorter application interval. For certain foliage plants in areas such as FL, avoid spraying plants during hot and sunny conditions or when conditions will not promote drying; do not apply to wilted plants.
May be used in greenhouses. Applicators and attending personnel should wear protective clothing including long-sleeves, gloves, goggles or eye shield plus a face-fitting respirator specifically designed to remove organic pesticide vapors and particulates. Do not use mistblowers or high pressure spray equipment when applying chlorothalonil in greenhouses.

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/35022AA	Ash		
FMBCCBM	Leaf spot (Cercospora)	1.04-1.125 lb/100 gal or 0.19 oz/gal or 1.125 tbls actual*/gal (1 lb/gal, 4.17 lb/gal FlC) (75% WP)	Apply at spring bud break.
FMBCCBO	Leaf spot (Cercosporidium)		
FMBCCFP	Leaf spot (Cylindrosporium)		
/34022AA	Azalea		
/34118AA	Rhododendron Hybrids/Cultivars		Discoloration of blooms has been noted on certain varieties when applications are made during bloom.
FBADOAV	Ovulinia petal blight	1.04-1.125 lb/100 gal or 0.19 oz/gal or 1.125 tbls actual*/gal (1 lb/gal, 4.17 lb/gal FlC) (75% WP)	Apply at new leaf emergence for dieback; or at early bloom for petal blight.
FDACPCN	Phytophthora dieback		
/35429AA	Buckeye		
/35071AA	Horsechestnut		
FAAAGAP	Anthracnose (Glomerella)	1.04-1.125 lb/100 gal (4.17 lb/gal FlC) (75% WP)	Apply at spring bud break.
FCADGBG	Leaf blotch (Guignardia)		

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/31057AA	Carnation		
FBATAAX FICHAAX	Alternaria leaf spot and stem rot	1.04-1.125 lb/100 gal or 0.19 oz/gal or 1.125 tbls actual*/gal (1 lb/gal, 4.17 lb/gal F1C) (75% WP)	For Alternaria, apply upon transplanting cuttings. For Botrytis, apply in cool, moist conditions.
FBADBAW	Botrytis blossom blight		
/34040AA	Cherry-laurel		
FMBCCBM	Cercospora leaf spot	1.04-1.125 lb/100 gal or 0.19 oz/gal or 1.125 tbls actual*/gal (1 lb/gal, 4.17 lb/gal F1C) (75% WP)	Apply at petal fall.
FMBCCDJ	Shot-hole leaf spot (Coccomyces)		
/31065AA	Chrysanthemum		
/31085AA	Daisies		
FBAPBAW	Gray mold blight (Botrytis)	1.125-1.63 lb/100 gal or 0.045 oz/100 sq.ft or 0.2-0.64 oz/gal or 0.625-1.125 tbls actual*/gal (0.4-4.17 lb/gal F1C) (50-75% WP) or	For leaf spot and ray blight, apply upon transplanting cuttings. For gray mold, apply prebloom. A 75 percent wettable powder formulation (Reg. No. 007764-00028) may be tank mixed with a multiple active ingredient product containing trichlorphon and oxydemeton-methyl (Reg. No. 007764-00040). OR MAI Formulated with dinocap and carbaryl; or dicofol, dinocap and diazinon.
FMBCSBL	Leaf spot (Septoria)		
FBADMCO	Ray blight (Mycosphaeralla)		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Chrysanthemum cluster (continued)		
		-- (5% D) OR MAI 0.18-0.2 oz/gal or 0.5 tbls actual*/gal (26.5-36% WP) (5% WP/D) or -- (5% WP/D)	
/31092AA	**Dracaena**		
FMBCFAK	Leaf spot (Fusarium)	1.04-1.125 lb/100 gal (4.17 lb/gal FlC) (75% WP)	Apply prior to transplant.
/34053AA	**Euonymus**		
FAAACDP	Anthracnose (Colletotrichum)	1.04-1.125 lb/gal (4.17 lb/gal FlC) (75% WP)	Apply at spring bud break.
/34058AA	**Firethorn**		
FEAJFAM	Scab (Fusicladium)	1.04-1.125 lb/100 gal or 0.19 oz/gal or 1.125 tbls actual*/gal (1 lb/gal, 4.17 lb/gal FlC) (75% WP)	Apply at spring bud break.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/34052AA /34061AA /34402AA	Flowering Almond Flowering Quince Purpleleaf Sand Cherry		
FBADMCB	Brown rot blossom/ twig blight (Monilinia)	1.04-1.125 lb/100 gal or 0.19 oz/gal or 1.125 tbls actual*/gal (1 lb/gal, 4.17 lb/gal F1C) (75% WP)	Apply at early bloom.
/35056AA	Flowering Crabapple		
FJAFGBI	Cedar-apple rust (Gymnosporangium)	1.04-1.125 lb/100 gal or 0.19 oz/gal or 1.125 tbls actual*/gal (1 lb/gal, 4.17 lb/gal F1C) (75% WP) OR MAI 0.2 oz/gal (26.5% WP)	Apply at spring bud break. OR MAI Formulated with dicofol, dinocap, and diazinon.
FMBCSCM	Leaf spot (Sphaeropsis)		
FEAJVAG	Scab (Venturia)		
/35057AA	Flowering Dogwood		
FMBCSBL	Leaf spot (Septoria)	1.04-1.125 lb/100 gal or 0.19 oz/gal or 1.125 tbls actual*/gal (1 lb/gal, 4.17 lb/gal F1C) (75% WP)	Apply at early bloom.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/31108AA	**Geranium**		
FBAPBAW	Gray mold blight (Botrytis)	1.125-1.63 lb/100 gal or 0.045 oz/100 sq.ft or 0.2-0.64 oz/gal or 0.625-1.125 tbls actual*/gal (0.4-4.17 lb/gal FlC) (50-75% WP) or -- (5% D) OR MAI 0.18-0.2 oz/gal or 0.5 tbls actual*/gal (26.5-36% WP) (5% WP/D) or -- (5% WP/D)	Apply during cool, moist conditions. A 75 percent wettable powder formulation (Reg. No. 007764-00028) may be tank mixed with a multiple active ingredient product containing trichlorphon and oxydemeton-methyl (Reg. No. 007764-00040). OR MAI Formulated with dinocap, carbaryl; or dicofol, dinocap, and diazinon.
FJAAQBB	Rust		
/31111AA	**Gladiolus**		
FMCDBAW	Botrytis leaf and flower spot	1.04-1.125 lb/100 gal or 0.19 oz/gal or 1.125 tbls actual*/gal (1 lb/gal, 4.17 lb/gal FlC) (75% WP)	Apply at early propagation.
FMCDCFH	Curvularia leaf and flower spot		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/34066AA	**Hawthorn**		
FBATFAA	Leaf blight (Fabraea)	1.04-1.125 lb/100 gal or 0.19 oz/gal or 1.125 tbls actual*/gal (1 lb/gal, 4.17 lb/gal F1C) (75% WP)	Apply at prebloom.
FJAFGBI	Rust (Gymnosporangium)		
/34070AA	**Holly**		
FBBHRAM	Rhizoctonia web blight	1.04-1.125 lb/100 gal (4.17 lb/gal F1C) (75% WP)	Apply during warm, moist conditions.
/31121AA	**Hollyhock**		
FJAAQBB	Rust	1.04-1.125 lb/100 gal or 0.19 oz/gal or 1.125 tbls actual*/gal (1 lb/gal, 4.17 lb/gal F1C) (75% WP)	Apply at early seedling stage.
/34073AA	**Hydrangea**		
FMBCCBM	Leaf spot (Cercospora)	1.04-1.125 lb/100 gal (4.17 lb/gal F1C) (75% WP)	Apply to foliage only at early propagation.
FMBCSBL	Leaf spot (Septoria)		
FJAAPEK	Rust (Pucciniastrum)		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/31126AA	Iris		
FBADBAW	Botrytis blossom blight	1.125-1.63 lb/100 gal or 0.045 oz/100 sq.ft or 0.2-0.64 oz/gal or 0.625-1.125 tbls actual*/gal (0.4-4.17 lb/gal F1C) (50-75% WP) or -- (5% D) OR MAI 0.18-0.2 oz/gal or 0.5 tbls actual*/gal (26.5-36% WP) (5% WP/D) or -- (5% WP/D) (5% D)	Apply during cool, moist conditions. OR MAI Formulated with dinocap and carbaryl; diazinon and sulfur; or dicofol, dinocap, and diazinon.
FMBCDBD	Leaf spot (Didymellina)		
/34078AA	Japanese Andromeda		
FDACPCN	Phytophthora dieback	1.04-1.125 lb/100 gal or 0.19 oz/gal or 1.125 tbls actual*/gal (1 lb/gal, 4.17 lb/gal F1C) (75% WP)	Apply at new leaf emergence.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/39010AA	**Leatherleaf Fern**		
FBAAACC	Ascochyta blight	1.04-1.125 lb/100 gal or 0.19-0.2 oz/gal or 1.125 tbls actual*/gal (1-4.17 lb/gal FlC) (50-75% WP)	Apply at spring bud break.
FMBCCBM	Leaf spot (Cercospora)		
FMBCCFO	Leaf spot (Cylindrocladium)		
FBAARAM	Rhizoctonia blight		
/34088AA	**Ligustrum**		
FMBCCBM	Leaf spot (Cercospora)	1.04-1.125 lb/100 gal or 0.19 oz/gal or 1.125 tbls actual*/gal (1 lb/gal, 4.17 lb/gal FlC) (75% WP)	Apply during prolonged wet conditions.
/31131AA	**Lilies**		
FBAPBAW	Gray mold blight (Botrytis)	1.04-1.125 lb/100 gal or 0.19 oz/gal or 1.125 tbls actual*/gal (1 lb/gal, 4.17 lb/gal FlC) (75% WP)	Apply prior to bloom.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/31141AA	Moses-in-the-cradle		
FMBSCFH	Tan leaf spot (Curvularia)	1.04-1.125 lb/100 gal or 0.19 oz/gal or 1.125 tbls actual*/gal (1 lb/gal, 4.17 lb/gal F1C) (50-75% WP)	Apply at early propagation.
/34097AA	Mountain-laurel		
FMBCCBM	Leaf spot (Cercospora)	1.04-1.125 lb/100 gal or 0.19 oz/gal or 1.125 tbls actual*/gal (1 lb/gal, 4.17 lb/gal F1C) (75% WP)	Apply at spring bud break.
/34103AA	Oregongrape		
FJAAQBB	Rust	1.04-1.125 lb/100 gal or 0.19 oz/gal or 1.125 tbls actual*/gal (1 lb/gal, 4.17 lb/gal F1C) (75% WP)	Apply at spring bud break.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/35007AA /35007DA /30002AA	Ornamental and Forest Tree Conifers		

(Site information has been separated into 2 parts based on 2 groups of labeling)

General Warnings and Limitations: (Reg. Nos. 050534-00008, 050534-00009, 050534-00004, and 050534-00023: Apply by ground equipment or aircraft excepted where indicated. When concentrate sprays are used, the lower rate per acre given may be applied. Use 100 gallons per acre for dilute sprays of Christmas tree stands or nursery beds. For concentrate sprays, apply 10 to 20 gallons per acre by aircraft to forest stands, 10 to 50 gallons per acre by ground equipment or aircraft to Christmas tree stands, and 5 to 10 gallons per acre by ground equipment only to nursery beds. Apply dosage rates given in per 100 gallons only as a full dilute spray. In all cases, apply in sufficient water to obtain uniform coverage of tree canopy.)

FKAFBAW FDAGPBS	Botrytis seedling blight Phoma twig canker	1.04-2.085 lb/A or 1.04-2.085 lb/100 gal (4.17 lb/gal FlC) (75% WP)	Foliar application to nursery beds. Apply in nursery beds when seedlings are 4 inches tall and when cool, moist conditions favor disease development. Repeat at 7 to 14 day intervals as long as conditions favorable for disease development persist.
FBAVLBK	Lophodermium needle cast	1.04-2.085 lb/A or 1.04-2.085 lb/100 gal (4.17 lb/gal FlC) (75% WP)	Use limited to North Central and Northeastern states. Foliar application. Apply beginning in mid-July to early August before infection occurs. Repeat at 3 to 4 week intervals until conditions no longer favor disease development. In nursery beds, apply high rate at 3 week intervals.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Ornamental and Forest Tree Conifers (continued)		
FBAVRAH	Rhabdocline needle cast [Douglas-fir]	1.04-4.17 lb/A or 1.04-4.17 lb/100 gal (4.17 lb/gal FlC) (75% WP)	Foliar application. Apply in spring when new shoot growth is 0.5 to 2 inches in length. Repeat at 3 to 4 week intervals until conditions no longer favor disease development. In nursery beds, apply highest rate given for each disease below. For Rhabdocline needle cast, Scleroderris canker, and Swiss needle cast, use 1.04 to 2.085 pounds; for Rhizosphaera needle cast and Scirrhia brown spot, use 4.125 to 4.17 pounds; and, for Sirococcus tip blight, use 1.5 to 2.625 pounds.
FBAVRAR	Rhizosphaera needle cast [spruces]		
FMAJSAJ	Scirrhia brown spot [pines]		
FDAGSAL	Scleroderris canker [pines]		
FBBGSBS	Sirococcus tip blight		
FBAVPBD	Swiss needle cast (Phaeocryptopus) [Douglas-fir]		
FBAVPBD	Swiss needle cast (Phaeocryptopus)	2.06-4.17 lb/A or 2.06-4.17 lb/100 gal (4.17 lb/gal FlC) (75% WP)	Foliar application. Single application technique. In Christmas tree plantations or forest stands make 1 application in the spring when new shoot growth is 0.5 to 2 inches in length.

Ornamental and Forest Tree Conifers (continued)

General Warnings and Limitations: Reg. Nos. 001812-00266, 000677-00444, and 000004-00290: Apply with ground equipment only. Apply the low rates with hydraulic spray equipment or the high rates with a high pressure mist blower.)

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
FBAVLBK	Lophodermium needle cast	1.82-1.875 lb/100 gal or 4.43-4.5 lb/100 gal (4.17 lb/gal F1C) (50-75% WP) OR MAI 0.2 oz/gal (26.5% WP)	Use limited to North Central and Northeastern states. Foliar application. Apply in early August before infection occurs. Make 3 applications at 3 to 4 week intervals for disease control. OR MAI Formulated with dicofol, dinocap, and diazinon.
FDAGPBS FBBGSBS	Phoma twig canker Sirococcus tip blight	1.43-1.5 lb/100 gal (4.17 lb/gal F1C) (50-75% WP) OR MAI 0.2 oz/gal (26.5% WP)	Use limited to West Coast states. Foliar application. Apply in early November and repeat at 2 to 4 week intervals as needed to maintain control. Use the shorter interval when disease conditions are moderately severe to severe. OR MAI Formulated with dicofol, dinocap, and diazinon.
FBAVRAR	Rhizosphaera needle cast	4.43 lb/100 gal (4.17 lb/gal F1C)	Foliar application. Apply in early June and repeat in 3 to 4 weeks.
FMAJSAJ	Scirrhia brown spot	4.43-4.5 lb/100 gal (4.17 lb/gal F1C) (50-75% WP) OR MAI 0.2 oz/gal (26.5% WP)	Foliar application. Apply when new needles are approximately one-half their full grown length. If rainfall is heavy, make 2 applications at 3 week intervals. OR MAI Formulated with dicofol, dinocap, and diazinon.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Ornamental and Forest Tree Conifers (continued)		
FDAGSAL	Scleroderris canker	2.215-2.25 lb/100 gal or 4.43-4.5 lb/100 gal (4.17 lb/gal F1C) (50-75% WP) OR MAI 0.2 oz/gal (26.5% WP)	Foliar application to nursery beds. Apply in spring as soon as new growth appears. Repeat at 2 to 3 week intervals until early July. Continue at 4 week intervals until early September. OR MAI Formulated with dicofol, dinocap, and diazinon.
/34106AA	Pachysandra		
FBBJVAL	Volutella leaf and stem blight	2.085-2.25 lb/100 gal (4.17 lb/gal F1C) (75% WP)	Apply at spring bud break.
/31387AA	Parlor Palm		
FMBCHAM	Helminthosporium leaf spot	1.04-1.125 lb/100 gal (4.17 lb/gal F1C) (75% WP)	Apply during cool, moist conditions.
/31154AA	Petunias		Discoloration of blooms has been noted on certain varieties when applications are made during bloom.
FIAXPCN	Crown rot (Phytophthora)	1.04-1.125 lb/100 gal or 0.19 oz/gal or 1.125 tbls actual*/gal (1 lb/gal, 4.17 lb/gal F1C) (75% WP)	Apply prior to bloom.
FBAABAW	Botrytis blight		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/31155AA	**Philodendron**		
FMBCDAB	Leaf spot (Dactylaria)	1.04-1.125 lb/100 gal or 0.19-0.64 oz/gal or 1.125 tbls actual*/gal (1-4.17 lb/gal FlC) (50-75% WP)	Apply during moist conditions.
FBAAPCN	Phytophthora blight		
/34110AA	**Photinia**		
FMBCFAA	Leaf spot (Fabraea)	1.04-1.125 lb/100 gal (4.17 lb/gal FlC) (75% WP)	Apply at spring bud break.
/35101AA	**Poplar**		
FMBCMAH	Leaf spot (Marssonina)	1.04-1.125 lb/100 gal (4.17 lb/gal FlC) (75% WP)	Apply at spring bud break.
/31373AA	**Prayer Plant**		
FMBCHAM	Helminthosporium leaf spot	1.04-1.125 lb/100 gal (4.17 lb/gal FlC) (75% WP)	Apply at early propagation.
/35105AA	**Red Oak**		
FAAAGAT	Anthracnose (Gnomonia)	1.04-1.125 lb/100 gal (4.17 lb/gal FlC) (75% WP)	Apply at dormant budswell.
FMBCAAN	Leaf spot (Actinopelte)		
FEAFTAB	Leaf blister (Taphrina)		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/34120AA	Rose		
FMAEDBS	Black spot (Diplocarpon)	0.75-1.08 lb/100 gal or 0.03 oz/100 sq.ft or 0.125-0.43 oz/gal or 0.5-0.75 tbls actual*/gal (0.4-4.17 lb/gal FlC) (50-75% WP) or -- (5% D) OR MAI 0.09-0.2 oz/gal or 0.5 tbls actual*/gal (26.5-36% WP) (5% WP/D) (3.75-6% EC) or -- (5% WP/D) (5% D)	Apply at spring bud break. A 75 percent wettable powder formulation (Reg. No. 007764-00028) may be tank mixed with a multiple active ingredient product containing trichlorphon and oxydemeton-methyl (Reg. No. 007764-00040). OR MAI Formulated with one or a combination of dicofol, dinocap, carbaryl, diazinon, and sulfur.
FBADBAW	Botrytis blossom blight		
FFACSCO	Powdery mildew (Sphaerotheca) [suppression]		
/31414AA	Statice		
FAAACDP	Anthracnose (Colletotrichum)	0.75-1.04 lb/100 gal (4.17 lb/gal FlC) (75% WP)	Apply at spring bud break.
FBATBAW	Botrytis leaf blight		
FMBCAAX	Leaf spot (Alternaria)		
FMBCCBM	Leaf spot (Cercospora)		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/35119AA	Sycamore		
FAAAGAT	Anthracnose (Gnomonia)	1.04-1.125 lb/100 gal (4.17 lb/gal F1C) (75% WP)	Apply in spring bud break.
/31272AA	Syngonium		
FMBCCBF	Leaf spot (Cephalosporium)	1.04-1.125 lb/100 gal (4.17 lb/gal F1C) (75% WP)	Apply during warm, moist conditions.
/34137AA	Viburnum		
FFACMBT	Powdery mildew (Microsphaera)	1.04-1.125 lb/100 gal or 0.19 oz/gal or 1.125 tbls actual*/gal (1 lb/gal, 4.17 lb/gal F1C) (75% WP)	Apply in mid-summer.
/31213AA	Zinnia		
FFACEBJ	Powdery mildew (Erysiphe)	1.125-1.63 lb/100 gal or 0.045 oz/100 sq.ft or 0.2-0.64 oz/gal or 0.625-1.125 tbls actual*/gal (0.4-4.17 lb/gal F1C) (50-75% WP) or	Apply at first sign of disease. OR MAI Formulated with diazinon and sulfur; or dicofol, dinocap, and diazinon.

Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
Zinnia (continued)	-- (5% D) OR MAI 0.18-0.2 oz/gal or 0.5 tbls actual*/gal (26.5-36% WP) (5% WP/D) or -- (5% WP/D) OR MAI 0.2 oz/gal (26.5% WP) or -- (5% D)	

GREENHOUSE FOOD CROP

(Agricultural Crops)

General Warnings and Limitations: For greenhouse use on tomato only. Use as a protective fungicide. The formulations are designed to be vaporized, and when cooled, to condense and leave a fine, invisible dust on the plants. Before treatment, turn off all misting systems. Foliage and blooms must be dry. Close all doors, windows and ventilators. Do not apply when greenhouse temperature is above 75 F (23.9 C).

The can containing the 20 percent impregnated material formulation (a powder) will treat 1,000 square feet of greenhouse area. Place can above crop foliage in the center of the 1,000 square feet area. Ignite by directing a propane torch to the side of the can or by placing a lit paper match to the surface of the powder.

Each tablet of the 90 percent pelleted tableted formulation (8 grams or 0.28 ounce active ingredient per tablet) will treat 400 square feet of greenhouse area. Tablets are vaporized in a shallow open pan at a temperature of 600 to 800 F (315.6 to 426.7 C). Place vaporizing unit on the floor at the center of the area to be treated. Do not place units of either formulation more than 50 feet apart.

Application should be made before development of disease. Repeat at weekly intervals as long as conditions favor disease development, especially during overcast, cool and humid weather. Overnight exposure is recommended. If not suitable, expose plants for at least 3 hours with doors and ventilators closed and fans turned off.

General Warnings and Limitations (continued)

Do not enter greenhouse during exposure period. Following exposure period, greenhouses should be well ventilated for at least 2 hours before re-entering. Do not handle foliage of treated plants for 2 or 3 days after treatment unless wearing protective gloves and clothing.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/11005CA	Tomato		5 ppm No preharvest interval through 0.7 ounce per 1,000 square feet.
FBAMAAX	Early blight (Alternaria)	0.28 oz/400 sq.ft (90% P/T) or 0.7 oz/1,000 sq.ft (20% Impr)	Foliar application to greenhouse grown plants.
FMAXSDG	Gray leaf spot (Stemphylium)		
FHACBAW	Gray mold (Botrytis)		
FBASPCN	Late blight (Phytophthora)		
FHACCCV	Leaf mold (Cladosporium)		

GREENHOUSE NON-FOOD CROP

(Ornamental Plants and Forest Trees)

General Warnings and Limitations: For greenhouse use only. Use as a protective fungicide. The formulations are designed to be vaporized, and when cooled, to condense and leave a fine invisible dust on the plants. Before treatment, turn off all misting systems. Foliage and blooms must be dry. Close all doors, windows and ventilators. Do not apply when greenhouse temperature is above 75 F (23.9 C). The can containing the 20 percent impregnated material formulation (a powder) will treat 1,000 square feet of greenhouse area. Place can above crop foliage in the center of the 1,000 square feet area. Ignite by directing a propane torch to the side of the can or by placing a lit paper match on the surface of the powder.

Each tablet of the 90 percent pelleted/tableted formulation (8 grams or 0.28 ounce active ingredient per tablet) will treat 400 square feet of greenhouse area. Tablets are vaporized in a shallow open pan at a temperature of 600 to 800 F (315.6 to 426.7 C). Place vaporizing unit on the floor at the center of the area to be treated. Do not place units of either formulation more than 50 feet apart.

Application should be made before development of disease. Repeat at weekly intervals as long as conditions favor disease development, especially during overcast, cool and humid weather.

Stock plants, from which cuttings have been taken, should be treated within 12 hours of cutting period. Overnight exposure is recommended.

Site and Pest | Dosages and Formulation(s) | Tolerance, Use, Limitations

General Warnings and Limitations (continued)

If not suitable, expose plants for at least 3 hours with doors and ventilators closed and fans turned off.
Do not enter greenhouse during exposure period. Following exposure period, greenhouses should be well ventilated for at least 2 hours before re-entering. Do not take cuttings from stock plants or handle foliage of treated plants for 2 or 3 days after treatment unless wearing protective gloves and clothing. Treatment can be made to both foliage and blooms except on those plants specified for application to foliage only. Of these, some are primarily grown for foliage while others may have varieties with blooms which are susceptible to discoloration. Treatment will control blossom blight, leaf spot, and stem rot caused by Gray mold blight (Botrytis).

(foliage and bloom treatment)

/31012CA	African Violets
/31013CA	Ageratum
/31017CA	Alyssum
/31022CA	Aphelandra
/31025CA	Asparagus Fern
/34022CA	Azalea
/31049CA	Calceolaria
/31058CA	Celosia
/31065CA	Chrysanthemum
/31066CA	Cineraria
/31080CA	Cyclamen
/31087CA	Dianthus
/31089CA	Dieffenbachia
/35044CA	Douglas-fir
/31093CA	Easter Lily
/34053CA	Euonymus
/34057CA	Ficus
/35051CA	Fir
/31104CA	Fuchsia
/31108CA	Geranium
/31112CA	Gloxinia
/34073CA	Hydrangea
/34083CA	Lantana
/34090CA	Mahonia
/31137CA	Marigold
/31143CA	Nasturtium
/35088CA	Norfolk Island Pine
/31149CA	Pansies
/35100CA	Ponderosa Pines
/31262CA	Pothos
/31284CA	Primrose
/31306CA	Purple Velvetplant
/34120CA	Rose
/31171CA	Salvia

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	African Violets cluster (continued)		
/31174CA	Scarlet Sage		
/31176CA	Schizanthus		
/31184CA	Snapdragon		
/34130CA	Spirea		
/31206CA	Verbena		
/31213CA	Zinnia		
FBAPBAW	Gray mold blight (Botrytis cinerea)	0.28 oz/400 sq.ft (90% P/T) or 0.7 oz/1,000 sq.ft (20% Impr)	Foliar application to greenhouse grown plants.
	(foliage treatment only)		
/31026CA	Aster		
/31034CA	Begonia		
/31041CA	Blue Fescue		
/31227CA	Bugleweed		
/31047CA	Caladium		
/31057CA	Carnation		
/31071CA	Coleus		
/31106CA	Garden Balsam		
/34184CA	Hedera		
/31122CA	Hoya		
/31129CA	Larkspur		
/31133CA	Lobelia		
/35097CA	Palm		
/34109CA	Periwinkle (Madagascar variety)		
/31154CA	Petunias		
/31159CA	Poinsettia		
FBAPBAW	Gray mold blight (Botrytis cinerea)	0.28 oz/400 sq.ft (90% P/T) or 0.7 oz/1,000 sq.ft (20% Impr)	Foliar application to greenhouse grown plants.

Refer to TERRESTRIAL NON-FOOD CROP, (Ornamental Plants (herbaceous plants and bulbs; woody shrubs, trees and vines)) for other uses in greenhouses.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations

DOMESTIC OUTDOOR

(Ornamental Plants and Forest Trees)

Refer to TERRESTRIAL NON-FOOD CROP, (Ornamental Plants and Forest Trees), for sites with homeowner directions.

(Wood or Wood Structure Protection Treatments)

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/64000NB	Wood Protection Treatment to Existing Buildings or Parts of Buildings		When applied by spraying, wear a mask or hood. All products are formulated with bis(tributylin) oxide. The 0.68 to 0.71 percent formulations are semi-transparent stains and the 0.42 to 0.49 percent formulations are solid color stains. All formulations are for exterior above-ground use only and may be applied to wood shingles, shakes, rough siding, panels and fencing. The semi-transparent formulations may also be applied to decks and wood lawn furniture. Do not use semi-transparent formulations on painted surfaces; if previously stained, use over old semi-transparent stain only. Do not use the solid color stains on yard furniture, floors or decks. They are not recommended for use on hardboard (pressed wood, fiberboard) or similar manufactured building materials. The solid color stains may be applied over previously finished wood (paint or solid stain) and metal surfaces such as gutters and flashing. All surfaces must be dry, well cured and clean. All cracks or large openings should be puttied or caulked. Mildew and other contaminants should be removed by scrubbing with an appropriate hypochlorite-type bleach and detergent solution. Do not apply when surface or atmospheric conditions are less than 50 F (10.0 C).
/64003NB	Wood Protection Treatment to Finished Wood Products		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Wood Protection Treatment to Existing Buildings or Parts of Buildings cluster (continued)		
			To apply, mix thoroughly and use unthinned for 1 coat application. If necessary, when applying 2 coats, the first coat may be thinned with up to 1 pint of mineral spirits per gallon of stain. Do not thin with water, oils, other stains or paints. Recoat after a minimum of 12 hours for semi-transparent and 24 hours for solid color stains.
FYAEQBB	Wood decay fungi	— (0.68-0.71% RTU) (0.42-0.49% RTU)	Wood preservative treatment. One gallon covers approximately 200 to 300 square feet of smooth surfaces; 150 to 200 square feet of rough surfaces; and, when using the solid color stains, 300 to 400 square feet of stained or painted surfaces. Application by brushing and working well into surface is recommended. Roller and pad application should be supplemented by brushing to fill crevices. If spraying is desired, apply the semi-transparent stains at 15 to 20 pounds pressure and the solid color stains at 30 to 50 pounds pressure.
		— (0.7% RTU)	Wood preservative treatment. One gallon covers approximately from 200 square feet of rough surfaces up to 350 square feet of rough surfaces. Apply by brush, spray, or dip. Dip siding 30 to 60 seconds, and framing and deck lumber up to 3 minutes. Recoat in 5 hours if desired. Do not thin or mix with any other product. Do not use on hardboard or over creosote base materials. Apply in the shade and when surface temperatures will not fall below 40 F (4.4 C) within 24 hours.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	FORESTRY		
	(Ornamental Plants and Forest Trees)		
		Refer to TERRESTRIAL NON-FOOD CROP, Ornamental and Forest Tree Conifers.	
	INDOOR		
	(Wood or Wood Structure Protection Treatment)		
/640010A	Wood Protection Treatment of Unseasoned Forest Products		
/640100A	Wood Protection Treatment of Forest Products by Pressure Treatment		
FYABQBB	Mold	0.87-1.69 lb/100 gal CCA solution OR 0.87-1.69 lb/100 gal water (4.17 lb/gal FlC)	Wood protection treatment. Apply to control molds on fresh-cut or unseasoned wood. Apply for complete wood surface coverage. Under extremely hot and humid conditions, use the higher rate. Add to CCA (chromated copper arsenate) treating solution and apply by pressure treatment using standard procedures of the American Wood-Preservers' Association. OR Dip wood in vat containing water dilution prior to CCA pressure treatment to control mold while wood is air drying; or, dip after CCA pressure treatment.
FYABQBB FYAGQBB	Mold Sapstain	1.01-2.02 lb/100 gal water (4.04 lb/gal FlC)	Wood protection treatment. Apply to control sapstain and mold in freshly cut lumber and timbers. Apply by dip or spray until all surfaces are thoroughly wet. Dipping is preferred. Use lower rate for lumber approximately 2 inches or less in thickness. Use the higher rate for timber or lumber greater than 2 inches in thickness and for bulked piled lumber and timbers.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Wood Protection Treatment of Unseasoned Forest Products cluster (continued)		
			Use fresh logs as free from infection as possible before converting into lumber. Treat lumber as soon as possible after cutting (within 12 to 24 hours). Place lumber and timbers on sticks if possible for rapid air seasoning. Protect freshly treated lumber from excessive rainfall immediately after treatment.
	(Commercial and Industrial Uses)		
/810010A	Grout (Portland Cement mildew resistant grout)		Adequate controls should be taken to prevent dusting during the handling and use of the formulation.
FYABQBB	Mildew	0.375-1.5% a.i. by weight or 0.375-1.5 lb/100 lb dry grout blend (75% WP)	Preservative incorporation. Apply during the dry blending process.
/810020A	Marine Antifouling Coatings		
PKAAAAA IAFAAAA	Algae Fouling organisms (barnacles, bryozoans, hydroids, mussels, tubeworms, tunicates)	5.2-21.3% of formulation on wet basis (96% D)	Preservative incorporation. Dosage rates are dependent on the length of time anti-fouling protection desired, the temperature of the waters in which the ship will operate, and the ingredients in the marine coating. Add to the marine coating during the pigment grinding operation. Refer to the manufacturer's bulletin for additional details and warnings.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
/810190A	Paints		
			Refer to the manufacturer's bulletin for specific details and warnings.
FYABQBB	Mildew (on paint film)	Latex emulsion exterior: 4.8-9.6 lb/100 gal paint or Latex emulsion interior: 2.4-4.8 lb/100 gal paint or Solvent-based exterior: 4.8-11.52 lb/100 gal paint (96% D)	Preservative incorporation. Apply during the pigment grinding operation. Use the higher rates for latex emulsion exterior paints in extreme mildew areas, such as the Gulf Coast.
		1.6-4.0 lb/100 gal paint (96% D)	Preservative incorporation. For use in aqueous or solvent based exterior paints and stains. Apply during the pigment grinding operation.
		Exterior: 4.04-10.1 lb/100 gal paint or Interior: 3.03-4.04 lb/100 gal paint (4.17 lb/gal FlC)	Preservative incorporation. For use in aqueous (latex) paint systems only. Apply during the pigment grind operation, during or after letdown, or to a finished paint.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	(Domestic and Human Use)		
/810190A	Paints and Stains		
FYABQBB	Mildew	1.55 oz/gal paint or stain (51.8% FlC)	Additive incorporation. Add to paint or stain. Mix thoroughly and apply paint or stain as directed. In certain alkyd modified latex paints some yellowing may occur in can overnight but will disappear within 3 days after application.
	AERIAL AND TANK MIX APPLICATIONS		
9001500 AAAAAAA	Aerial Application		
	—	Refer to TERRESTRIAL FOOD CROP	All except Cotton (seed treatment)
9900300 AAAAAAA	Tank Mix (including non-agricultural mixes)		
	—	Refer to TERRESTRIAL FOOD CROP (Agricultural Crops)	Soybeans, Tomato
		TERRESTRIAL NON-FOOD CROP (Ornamental Plants and Trees)	Ornamental Turf, Chrysanthemum, Geranium, Rose
		INDOOR (Wood or Wood Structure Protection Treatments)	Wood Protection Treatment of Unseasoned Forest Products, Wood Protection Treatment of Forest Products by Pressure Treatment.

CHLOROTHALONIL

Listing of Registered Pesticide Products by Formulation

&096.0001 96% technical chemical
  chlorothalonil (081901)
    050534-00007   050534-00024

&098.0001 98% technical chemical
  chlorothalonil (081901)
    001812-00268

&102.8802 29.6% (2.88 lb/gal) formulation intermediate
  chlorothalonil (081901)
    050534-00033

&103.0002 30.8% (3 lb/gal) formulation intermediate
  chlorothalonil (081901)
    050534-00035

&104.1702 40.4% (4.17 lb/gal) formulation intermediate
  chlorothalonil (081901)
    050534-00034

&075.0002 75% formulation intermediate
  chlorothalonil (081901)
    050534-00029

&005.0003 5% dust
  chlorothalonil (081901)
    007401-00331

  chlorothalonil (081901), 0,0-diethyl 0-(2-isopropyl-6-methyl-4-pyrimidinyl) phosphorothioate (057801) plus sulfur or sulphur (077501)
    000769-00525

  chlorothalonil (081901), 1,1-bis(chlorophenyl)-2,2,2-trichloroethanol (010501), carbaryl (056801) plus sulfur or sulphur (077501)
    009404-00012

&096.0003 96% dust
  chlorothalonil (081901)
    002204-00012   002204-00020

&002.5004 2.5% granular
  chlorothalonil (081901)
    000572-00280   005298-00017   007001-00274   007764-00036

&005.0004 5% granular
  chlorothalonil (081901)
    000004-00291   000961-00277   001159-00189   007001-00329

&007.4004 7.4% granular
  chlorothalonil (081901)
    000538-00124

Listing of Registered Pesticide Products by Formulation (continued)

&009.5004 9.5% granular
chlorothalonil (081901)
000538-00114

&011.2504 11.25% granular
chlorothalonil (081901)
000538-00141

&090.0005 90% pelleted/tableted
chlorothalonil (081901)
050534-00019

&026.5006 26.5% wettable powder
chlorothalonil (081901), 1,1-bis(chlorophenyl)-2,2,2-trichloroethanol (010501), 2,4-dinitro-6-octyl*phenyl crotonate 2,6-dinitro-4-octyl*-phenyl crotonate nitrooctylphenols (principally dinitro) *a mixture of 1-methylheptyl, 1-ethylhexyl and 1-propylpentyl (036001) plus 0,0-diethyl 0-(2-isopropyl-6-methyl-4-pyrimidinyl) phosphorothioate (057801)
000538-00134

&036.0006 36% wettable powder
chlorothalonil (081901), 2,4-dinitro-6-octyl*phenyl crotonate 2,6-dinitro-4-octyl*phenyl crotonate nitrooctylphenols (principally dinitro) *a mixture of 1-methylheptyl, 1-ethylhexyl and 1-propylpentyl (036001) plus carbaryl (056801)
007764-00041

&040.0006 40% wettable powder
chlorothalonil (081901) plus sodium [4-(dimethylamino)phenyl]diazenesulfonate (034201)
003125-00287 003125-00298

&050.0006 50% wettable powder
chlorothalonil (081901)
000004-00290 007401-00330

&075.0006 75% wettable powder
chlorothalonil (081901)
000004-00289 000677-00444 000829-00232 002204-00019
007764-00028 050534-00004 050534-00023

&005.0007 5% wettable powder/dust
chlorothalonil (081901), 2,4-dinitro-6-octyl*phenyl crotonate 2,6-dinitro-4-octyl*phenyl crotonate nitrooctylphenols (principally dinitro) *a mixture of 1-methylheptyl, 1-ethylhexyl and 1-propylpentyl (036001) plus carbaryl (056801)
007764-00024

EPA Index to Pesticide Chemicals

CHLOROTHALONIL

Listing of Registered Pesticide Products by Formulation (continued)

&020.0010 20% impregnated materials
chlorothalonil (081901)
000070-00223 050534-00021

&203.7512 3.75% (0.29 lb/gal) emulsifiable concentrate
chlorothalonil (081901) plus carbaryl (056801)
007401-00062

&206.0012 6% (0.48 lb/gal) emulsifiable concentrate
chlorothalonil (081901), aromatic petroleum derivative solvent (006501) plus 0,0-diethyl 0-(2-isopropyl-6-methyl-4-pyrimidinyl) phosphorothioate (057801)
007401-00067

&204.5014 4.5% (0.4 lb/gal) flowable concentrate
chlorothalonil (081901)
001769-00251

&101.0014 11.24% (1 lb/gal) flowable concentrate
chlorothalonil (081901)
000769-00489

&212.0014 12% (1.06 lb/gal) flowable concentrate
chlorothalonil (081901)
005719-00077

&212.5014 12.5% (1.1 lb/gal) flowable concentrate
chlorothalonil (081901)
007401-00065

&101.1414 12.5% (1.14 lb/gal) flowable concentrate
chlorothalonil (081901)
006993-00061

&102.0814 19.15% (2.08 lb/gal) flowable concentrate
chlorothalonil (081901) plus sulfur or sulphur (077501)
005905-00472

&102.8814 29.6% (2.88 lb/gal) flowable concentrate
chlorothalonil (081901)
000239-02432 000239-02438 007401-00339 007401-00340

&240.4014 40.4% (4.04 lb/gal) flowable concentrate
chlorothalonil (081901)
006651-00030

&104.1714 40.4% (4.17 lb/gal) flowable concentrate
chlorothalonil (081901)
001812-00266 002204-00018 006651-00030 010465-00013
050534-00008 050534-00009

CHLOROTHALONIL

Listing of Registered Pesticide Products by Formulation (continued)

%251.8014 51.8% flowable concentrate
chlorothalonil (081901)
021346-00002

%200.4216 0.42% liquid-ready to use
chlorothalonil (081901) plus bis(tributyltin) oxide (083001)
000200-00095

%200.4516 0.45% liquid-ready to use
chlorothalonil (081901) plus bis(tributyltin) oxide (083001)
000200-00090 000200-00094

%200.4716 0.47% liquid-ready to use
chlorothalonil (081901) plus bis(tributyltin) oxide (083001)
000200-00093 000200-00096 000200-00097 000200-00098

%200.4816 0.48% liquid-ready to use
chlorothalonil (081901) plus bis(tributyltin) oxide (083001)
000200-00087 000200-00088 000200-00091 000200-00092

%200.4916 0.49% liquid-ready to use
chlorothalonil (081901) plus bis(tributyltin) oxide (083001)
000200-00089

%200.6716 0.67% liquid-ready to use
chlorothalonil (081901) plus bis(tributyltin) oxide (083001)
000200-00078

%200.6816 0.68% liquid-ready to use
chlorothalonil (081901) plus bis(tributyltin) oxide (083001)
000200-00076 000200-00079 000200-00080 000200-00081
000200-00083

%200.6916 0.69% liquid-ready to use
chlorothalonil (081901) plus bis(tributyltin) oxide (083001)
000200-00077 000200-00082

%200.7016 0.7% liquid-ready to use
chlorothalonil (081901) plus bis(tributyltin) oxide (083001)
000200-00074 000200-00075 000200-00084 000200-00085
000518-00069

%200.7116 0.71% liquid-ready to use
chlorothalonil (081901) plus bis(tributyltin) oxide (083001)
000200-00086

9999999 State Label Registrations

CA Reg. No.
000677-03985 005719-04903

FL Reg. No.
000677-03961 000677-03962 000829-06763 000829-06768
007478-07989 007478-07991 007478-08010 007478-08016
007478-08018 009404-03473 009859-05638 014775-10508

GA Reg. No.
010873-05406 010873-07358

HI Reg. No.
000677-03963 037843-08568 037843-08569

IN Reg. No.
000677-03966

ME Reg. No.
000677-03964

NY Reg. No.
038655-10454

OH Reg. No.
000677-03965

PA Reg. No.
000677-03967

TX Reg. No.
000677-03968

Appendix A

Listing of Common Chemical Names Used on the Entry

Chemical Code	Common Name (source)	EPA Acceptable Common/Chemical Name
010501	dicofol	1,1-bis(chlorophenyl)-2,2,2-trichloroethanol
034201	fenaminosulf (ISO)	sodium [4-(dimethylamino)phenyl]diazenesulfonate
036001	dinocap (ISO)	2,4-dinitro-6-octyl*phenyl crotonate 2,6-dinitro-4-octyl*phenyl crotonate nitrooctylphenols (principally dinitro) *a mixture of 1-methylheptyl, 1-ethylhexyl and 1-propylpentyl
057801	diazinon (ISO)	0,0-diethyl 0-(2-isopropyl-6-methyl-4-pyrimidinyl) phosphorothioate
057901	trichlorphon (ISO)	dimethyl (2,2,2-trichloro-1-hydroxyethyl)phosphonate
058702	oxydemeton-methyl (ISO)	S[2-(ethylsulfinyl)ethyl] 0,0-dimethyl phosphorothioate
077501	sulfur	sulfur or sulphur

EPA Index to Pesticide Chemicals

CHLOROTHALONIL

Appendix B

Listing by Site/Pest and Site/Formulation/Registration Number

TERRESTRIAL FOOD CROP

/05001AA	Apricot
FBADMCB	Brown rot blossom and twig blight (Monilinia)
FBAZCEL	Coryneum blight (shothole)
FEAGTAB	Leaf curl (Taphrina) (on nectarine and peach)
FEAJCCV	Scab (Cladosporium)
	(2.08 lb/gal FlC)
	005905-00472
	(4.17 lb/gal FlC)
	050534-00008
/15001AA	Beans
FAAACDP	Anthracnose (Colletotrichum)
FMBCCBM	Cercospora leaf spot (blackeye only)
FFABPAU	Downy mildew (Peronospora)
FJAAUAH	Rust (Uromyces)
	(4.17 lb/gal FlC)
	050534-00008
/15003AA	Beans, Snap
FBAPBAW	Gray mold blight (Botrytis)
FJAAUAH	Rust (Uromyces)
	(5% D)
	007401-00331
	(50% WP)
	000004-00290 007401-00330
	(75% WP)
	000004-00289 000677-00444 050534-00023
	(1 lb/gal FlC)
	000769-00489
	(2.08 lb/gal FlC)
	005905-00472
	(2.88 lb/gal FlC)
	000239-02438 007401-00340
	(4.17 lb/gal FlC)
	001812-00266 050534-00008

Listing by Site/Pest and Site/Formulation/Registration Number

/22026BA **Bluegrass**
FJAGPEJ Rust (Puccinia)
FJAMPEJ Stem rust (Puccinia)
FJANPEJ Stripe rust (Puccinia)
(75% WP)
050534-00023

(4.17 lb/gal FlC)
050534-00008

/13005AA **Broccoli**
FFABPAU Downy mildew (Peronospora)
FMBCAAX Leaf spot (gray leaf spot) (Alternaria)
(5% D)
007401-00331

(50% WP)
000004-00290 007401-00330

(75% WP)
000004-00289 000677-00444 000829-00232 050534-00023

(1 lb/gal FlC)
000769-00489

(1.1 lb/gal FlC)
007401-00065

(1.14 lb/gal FlC)
006993-00061

(2.08 lb/gal FlC)
005905-00472

(2.88 lb/gal FlC)
000239-02438 007401-00340

(4.17 lb/gal FlC)
001812-00266 050534-00008

/13006AA **Brussels Sprouts**
FFABPAU Downy mildew (Peronospora)
FMBCAAX Leaf spot (gray leaf spot) (Alternaria)
FMBMMCO Ringspot (Mycosphaerella)
(5% D)
007401-00331

(50% WP)
000004-00290 007401-00330

(75% WP)
000004-00289 000677-00444 000829-00232 050534-00023

(1 lb/gal FlC)
000769-00489

(1.1 lb/gal FlC)
007401-00065

(1.14 lb/gal FlC)
006993-00061

(2.08 lb/gal FlC)
005905-00472

(2.88 lb/gal FlC)
000239-02438 007401-00340

(4.17 lb/gal FlC)
001812-00266 050534-00008

/13007AA **Cabbage**
FFABPAU Downy mildew (Peronospora)
FMBCAAX Leaf spot (gray leaf spot) (Alternaria)
(5% D)
007401-00331

(50% WP)
000004-00290 007401-00330

(75% WP)
000004-00289 000677-00444 000829-00232 050534-00023

(1 lb/gal FlC)
000769-00489

(1.1 lb/gal FlC)
007401-00065

Cabbage (continued)

(1.14 lb/gal FlC)
006993-00061

(2.08 lb/gal FlC)
005905-00472

(2.88 lb/gal FlC)
000239-02438 007401-00340

(4.17 lb/gal FlC)
001812-00266 050534-00008

/28073AA Carrots
FBAMCBM Early blight (Cercospora)
FBASAAX Late blight (Alternaria)
(5% D)
007401-00331

(50% WP)
000004-00290 007401-00330

(75% WP)
000004-00289 000677-00444 000829-00232 050534-00023

(1 lb/gal FlC)
000769-00489

(1.1 lb/gal FlC)
007401-00065

Carrots (continued)

(2.88 lb/gal FlC)
000239-02438 007401-00340

(4.17 lb/gal FlC)
001812-00266 050534-00008

/13008AA Cauliflower
FFABPAU Downy mildew (Peronospora)
FMBCAAX Leaf spot (gray leaf spot) (Alternaria)

(5% D)
007401-00331

(50% WP)
000004-00290 007401-00330

(75% WP)
000004-00289 000677-00444 000829-00232 050534-00023

(1 lb/gal FlC)
000769-00489

(1.1 lb/gal FlC)
007401-00065

(1.14 lb/gal FlC)
006993-00061

(2.08 lb/gal FlC)
005905-00472

(2.88 lb/gal FlC)
000239-02438 007401-00340

(4.17 lb/gal FlC)
001812-00266 050534-00008

/28003AA Celery
FICXRAM Basal stalk rot (Rhizoctonia)
FBAMCBM Early blight (Cercospora)
FBASSBL Late blight (Septoria)
FIBTSAQ Pink rot (Sclerotinia) [suppression]
(50% WP)
000004-00290

(75% WP)
000004-00289 000677-00444 050534-00023

(2.88 lb/gal FlC)
000239-02438 007401-00340

(4.17 lb/gal FlC)
001812-00266 050534-00008

(Plant Beds)
FBAMCBM Early blight (Cercospora)
FBASSBL Late blight (Septoria)
(50% WP)
000004-00290

(75% WP)
000004-00289 000677-00444 050534-00023

(2.88 lb/gal FlC)
000239-02438 007401-00340

(4.17 lb/gal FlC)
001812-00266 050534-00008

/05002AA Cherry
FBADMCB Brown rot blossom and twig blight (Monilinia)
FMBCCDJ Cherry leaf spot (Coccomyces)
(2.08 lb/gal FlC)
005905-00472

(4.17 lb/gal FlC)
050534-00008

/28005CA Corn
FJAAPEJ Common corn rust (Puccinia)
FBATHAM Northern and Southern corn leaf blights (Helminthosporium)
(5% D)
007401-00331

(50% WP)
000004-00290 007401-00330

(75% WP)
000004-00289 000677-00444 050534-00023

(1 lb/gal FlC)
000769-00489

(2.88 lb/gal FlC)
000239-02438 007401-00340

(4.17 lb/gal FlC)
001812-00266 050534-00008

/15005AA Corn, Sweet
FJAAPEJ Common corn rust (Puccinia)
FBATHAM Northern and Southern corn leaf blights (Helminthosporium)
(5% D)
007401-00331

(50% WP)
000004-00290 007401-00330

(75% WP)
000004-00289 000677-00444 050534-00023

(1 lb/gal FlC)
000769-00489

(2.88 lb/gal FlC)
000239-02438 007401-00340

(4.17 lb/gal FlC)
001812-00266 050534-00008

/28007AA Cotton
FKAFRAM Seed and seedling diseases (Rhizoctonia)
(40% WP)
003125-00287 003125-00298

CHLOROTHALONIL

Appendix B

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

/10010AA	Cucumber
FAAACDP	Anthracnose (Colletotrichum)
FIACRAM	Belly rot of fruit (Rhizoctonia)
FIACRAM	Belly rot of fruit (Rhizoctonia) [suppression]
FFABPEA	Downy mildew (Pseudoperonospora)
FBAQMCO	Gummy stem blight (Mycosphaerella)
FBATAAX	Leaf blight (Alternaria)
FFACEBJ	Powdery mildew (Erysiphe) [except Southwestern states]
FEAJCCV	Scab (Cladosporium)
FMBCCEK	Target leaf spot (Corynespora)
	(5% D)
	007401-00331
	(50% WP)
	000004-00290 007401-00330
	(75% WP)
	000677-00444 000829-00232 050534-00023
	(1 lb/gal FlC)
	000769-00489
	(2.88 lb/gal FlC)
	000239-02438 007401-00340
	(4.17 lb/gal FlC)
	001812-00266 050534-00008
/14007AA	Garlic
FMAHBAW	Botrytis leaf blast
FFABPAU	Downy mildew (Peronospora)
FCAEAAX	Purple botch (Alternaria)
	(4.17 lb/gal FlC)
	050534-00008
/14010AA	Leek
FMAHBAW	Botrytis leaf blast
FFABPAU	Downy mildew (Peronospora)
FCAEAAX	Purple botch (Alternaria)
	(4.17 lb/gal FlC)
	050534-00008

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

/10001AA	Melons
FAAACDP	Anthracnose (Colletotrichum)
FMBCCBM	Cercospora leaf spot
FFABPEA	Downy mildew (Pseudoperonospora)
FBAQMCO	Gummy stem blight (Mycosphaerella)
FBATAAX	Leaf blight (Alternaria)
FFACEBJ	Powdery mildew (Erysiphe) [except Southwestern states]
FEAJCCV	Scab (Cladosporium)
	(5% D)
	007401-00331
	(50% WP)
	000004-00290 007401-00330
	(75% WP)
	000004-00289 000677-00444 000829-00232 050534-00023
	(1 lb/gal F1C)
	000769-00489
	(1.1 lb/gal F1C)
	007401-00065
	(1.14 lb/gal F1C)
	006993-00061
	(2.88 lb/gal F1C)
	000239-02438 007401-00340
	(4.17 lb/gal F1C)
	001812-00266 050534-00008
/28012AA	Mint
FJAAPEJ	Rust (Puccinia)
FMBCSBL	Septoria leaf spot
	(4.17 lb/gal F1C)
	050534-00008
/05003AA	Nectarine
FBADMCB	Brown rot blossom and twig blight (Monilinia)
FBAZCEL	Coryneum blight (shothole)
FEAGTAB	Leaf curl (Taphrina) (on nectarine and peach)
FEAJCCV	Scab (Cladosporium)
	(2.08 lb/gal F1C)
	005905-00472
	(4.17 lb/gal F1C)
	050534-00008

EPA Index to Pesticide Chemicals

CHLOROTHALONIL

Appendix B

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

/14011AA	Onion
FMAHBAW	Botrytis leaf blast
FFABPAU	Downy mildew (Peronospora)
FCAEAAX	Purple blotch (Alternaria)
	(50% WP)
	000004-00290
	(75% WP)
	000004-00289 000677-00444 000829-00232 050534-00023
	(1 lb/gal FlC)
	000769-00489
	(4.17 lb/gal FlC)
	001812-00266 050534-00008
/16004AA	Onion
FMAHBAW	Botrytis leaf blast
FFABPAU	Downy mildew (Peronospora)
FCAEAAX	Purple blotch (Alternaria)
	(50% WP)
	000004-00290
	(75% WP)
	000004-00289 000677-00444 000829-00232 050534-00023
	(1 lb/gal FlC)
	000769-00489
	(4.17 lb/gal FlC)
	001812-00266 050534-00008
/14011BA	Onion (seed crop)
FMAHBAW	Botrytis leaf blast
FFABPAU	Downy mildew (Peronospora)
FCAEAAX	Purple botch (Alternaria)
	(4.17 lb/gal FlC)
	050534-00008
/06010AA	Papaya
FAAACDP	Anthracnose (Colletotrichum)
FMAWAAX	Fruit spot (Alternaria)
FICIPCN	Stem-end rot (Phytophthora)
	(4.17 lb/gal FlC)
	050534-00008

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

/14012AA	Parsnip
FMBCAAX	Alternaria leaf spot
FAAACFP	Anthracnose (Cylindrosporium)
FIAABAW	Botrytis blight (gray mold)
FIAMRAM	Bottom rot (Rhizoctonia)
FFABPCV	Downy mildew (Plasmopara)
	(4.17 lb/gal F1C)
	050534-00008
/06014AA	Passion Fruit
FMAWAAX	Alternaria fruit spot
	(4.17 lb/gal F1C)
	001812-00266 050534-00008
/05004AA	Peach
FBADMCB	Brown rot blossom and twig blight (Monilinia)
FBAZCEL	Coryneum blight (shothole)
FEAGTAB	Leaf curl (Taphrina) (on nectarine and peach)
FEAJCCV	Scab (Cladosporium)
	(2.08 lb/gal F1C)
	005905-00472
	(4.17 lb/gal F1C)
	050534-00008
/28015AA	Peanuts
FMBCCBM	Early leaf spot (Cercospora)
FMBCCBO	Late leaf spot (Cercosporidium)
FJAGPEJ	Rust (Puccinia)
FCAJACC	Web blotch (Ascochyta)
	(50% WP)
	000004-00290
	(75% WP)
	000004-00289 000677-00444 000829-00232 050534-00023
	(1 lb/gal F1C)
	000769-00489
	(2.08 lb/gal F1C)
	005905-00472
	(4.17 lb/gal F1C)
	001812-00266 050534-00008

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Appendix B

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

/22035BA	Perennial Ryegrass (seed crop)
FJAGPEJ	Rust (Puccinia)
FJAMPEJ	Stem rust (Puccinia)
FJANPEJ	Stripe rust (Puccinia)
	(75% WP)
	050534-00023
	(4.17 lb/gal FlC)
	050534-00008
/05005AA	Plum
FBADMCB	Brown rot blossom and twig blight (Monilinia)
	(2.08 lb/gal FlC)
	005905-00472
	(4.17 lb/gal FlC)
	050534-00008
/14013AA	Potato
FICMBAW	Botrytis vine rot
FBAMAAX	Early blight (Alternaria)
FBASPCN	Late blight (Phytophthora)
	(5% D)
	007401-00331
	(50% WP)
	000004-00290 007401-00330
	(75% WP)
	000004-00289 000677-00444 000829-00232 050534-00023
	(1 lb/gal FlC)
	000769-00489
	(1.1 lb/gal FlC)
	007401-00065
	(2.08 lb/gal FlC)
	005905-00472
	(2.88 lb/gal FlC)
	000239-02438 007401-00340
	(4.17 lb/gal FlC)
	001812-00266 050534-00008
/05006AA	Prune
FBADMCB	Brown rot blossom and twig blight (Monilinia)
	(2.08 lb/gal FlC)
	005905-00472
	(4.17 lb/gal FlC)
	050534-00008

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

/10011AA	Pumpkin
FAAACDP	Anthracnose (Colletotrichum)
FMBCCBM	Cercospora leaf spot
FFABPEA	Downy mildew (Pseudoperonospora)
FBAQMCO	Gummy stem blight (Mycosphaerella)
FBATAAX	Leaf blight (Alternaria)
FFACEBJ	Powdery mildew (Erysiphe) [except Southwestern states]
FEAJCCV	Scab (Cladosporium)
	(5% D)
	007401-00331
	(50% WP)
	000004-00290 007401-00330
	(75% WP)
	000004-00289 000677-00444 000829-00232 050534-00023
	(1 lb/gal FlC)
	000769-00489
	(1.1 lb/gal FlC)
	007401-00065
	(1.14 lb/gal FlC)
	006993-00061
	(2.88 lb/gal FlC)
	000239-02438 007401-00340
	(4.17 lb/gal FlC)
	001812-00266 050534-00008
/14017AA	Shallot
FMAHBAW	Botrytis leaf blast
FFABPAU	Downy mildew (Peronospora)
FCAEAAX	Purple botch (Alternaria)
	(4.17 lb/gal FlC)
	050534-00008
/28023AA	Soybeans
FAAAGAP	Anthracnose (Glomerella)
FBAYDAP	Diaparthe pod and stem blight
FMAVCBM	Frogeye leaf spot (Cercospora)
FKACCBM	Purple seed stain (Cercospora)
FMAJSBL	Septoria brown spot
	(4.17 lb/gal FlC)
	050534-00008

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Appendix B

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

/10012AA	Squash
FAAACDP	Anthracnose (Colletotrichum)
FMBCCBM	Cercospora leaf spot
FFABPEA	Downy mildew (Pseudoperonospora)
FBAQMCO	Gummy stem blight (Mycosphaerella)
FBATAAX	Leaf blight (Alternaria)
FFACEBJ	Powdery mildew (Erysiphe) [except Southwestern states]
FEAJCCV	Scab (Cladosporium)

(5% D)
007401-00331

(50% WP)
000004-00290   007401-00330

(75% WP)
000004-00289   000677-00444   000829-00232   050534-00023

(1 lb/gal FlC)
000769-00489

(1.1 lb/gal FlC)
007401-00065

(1.14 lb/gal FlC)
006993-00061

(2.88 lb/gal FlC)
000239-02438   007401-00340

(4.17 lb/gal FlC)
001812-00266   050534-00008

/11005AA	Tomato
FAAACDP	Anthracnose (Colletotrichum)
FFAGAAX	Black mold rot (Alternaria)
FBAMAAX	Early blight (Alternaria)
FIBFRAM	Fruit rot (Rhizoctonia)
FMAXSDG	Gray leaf spot (Stemphylium)
FBAPBAW	Gray mold blight (Botrytis)
FBASPCN	Late blight (Phytophthora)
FHAGCCV	Leaf mold (Cladosporium)
FMBCSBL	Septoria leaf spot

(5% D)
007401-00331

(50% WP)
000004-00290   007401-00330

Tomato (continued)

(75% WP)
000004-00289 000677-00444 000829-00232 050534-00023

(1 lb/gal FlC)
000769-00489

(1.1 lb/gal FlC)
007401-00065

(1.14 lb/gal FlC)
006993-00061

(2.08 lb/gal FlC)
005905-00472

(2.88 lb/gal FlC)
000239-02438 007401-00340

(4.17 lb/gal FlC)
001812-00266 050534-00008

TERRESTRIAL NON-FOOD CROP

/33019BA Bluegrass
FJAGPEJ Rust (Puccinia)
FJAMPEJ Stem rust (Puccinia)
FJANPEJ Stripe rust (Puccinia)
(75% WP)
050534-00023

(4.17 lb/gal FlC)
050534-00008

/33028AA Dichondra
FMBCAAX Alternaria leaf spot
FAAAGAN Anthracnose (Gloeosporium)
(5% G)
000004-00291

(7.4% G)
000538-00124

(9.5% G)
000538-00114

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

Dichondra (continued)

(11.25% G)
000538-00141

(50% WP)
000004-00290

(75% WP)
000677-00444   000829-00232   050534-00004   050534-00023

(1.06 lb/gal FlC)
005719-00077

(1.14 lb/gal FlC)
006993-00061

(2.88 lb/gal FlC)
000239-02432   007401-00339

(4.17 lb/gal FlC)
050534-00009

/33007AA Golf Course Turf (fairways)
FBAHRAM Brown patch (Rhizoctonia)
FMAQSAQ Dollar spot (Sclerotinia)
FMBCHAM Leaf spot (Helminthosporium)

(50% WP)
000004-00290

(75% WP)
000677-00444   050534-00004   050534-00023

(4.17 lb/gal FlC)
050534-00009

/33008AA Ornamental Turf
FBAHRAM Brown patch (Rhizoctonia)
FMAPRAE Copper spot (Ramulispora)
FBATCFH Curvularia (including blight, fading out, going out, leaf spot)
FMAQSAQ Dollar spot (Sclerotinia)
FMAXPCR Gray leaf spot (Piricularia)
FMBCHAM Leaf spot (Helminthosporium)
FBATHAM Melting out (Helminthosporium)
FBAXCEF Red thread (Corticium)
FJAMPEJ Stem rust of bluegrass (Puccinia)

(5% D)
007401-00331

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

Ornamental Turf (continued)

(2.5% G)
000572-00280 005298-00017 007001-00274 007764-00036

(5% G)
000004-00291 000961-00277 001159-00189 007001-00329

(7.4% G)
000538-00124

(9.5% G)
000538-00114

(11.25% G)
000538-00141

(50% WP)
000004-00290 007401-00330

(75% WP)
000677-00444 000829-00232 007764-00028 050534-00004
050534-00023

(0.4 lb/gal F1C)
001769-00251

(1 lb/gal F1C)
000769-00489

(1.06 lb/gal F1C)
005719-00077

(1.1 lb/gal F1C)
007401-00065

(1.14 lb/gal F1C)
006993-00061

(2.88 lb/gal F1C)
000239-02432 007401-00339

(4.17 lb/gal F1C)
050534-00009

/33043BA	Perennial Ryegrass
FJAGPEJ	Rust (Puccinia)
FJAMPEJ	Stem rust (Puccinia)
FJANPEJ	Stripe rust (Puccinia)
	(75% WP)
	050534-00023
	(4.17 lb/gal FlC)
	050534-00008

(Ornamental Plants (herbaceous plants and bulbs; woody shrubs, trees and vines))

/35022AA	Ash
FMBCCBM	Leaf spot (Cercospora)
FMBCCBO	Leaf spot (Cercosporidium)
FMBCCFP	Leaf spot (Cylindrosporium)
	(75% WP)
	050534-00004 050534-00023
	(1 lb/gal FlC)
	000769-00489
	(4.17 lb/gal FlC)
	050534-00009
/34022AA	Azalea
FBADOAV	Ovulinia petal blight
FDACPCN	Phytophthora dieback
	(75% WP)
	050534-00004 050534-00023
	(1 lb/gal FlC)
	000769-00489
	(4.17 lb/gal FlC)
	050534-00009
/35429AA	Buckeye
FAAAGAP	Anthracnose (Glomerella)
FCADGBG	Leaf blotch (Guignardia)
	(75% WP)
	050534-00004
	(4.17 lb/gal FlC)
	050534-00009

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

/31057AA Carnation
FBATAAX Alternaria leaf spot and stem rot
FICHAAX
FBADBAW Botrytis blossom blight
(75% WP)
050534-00004 050534-00023

(1 lb/gal FlC)
000769-00489

(4.17 lb/gal FlC)
050534-00009

/34040AA Cherry-laurel
FMBCCBM Cercospora leaf spot
FMBCCDJ Shot-hole leaf spot (Coccomyces)
(75% WP)
050534-00004 050534-00023

(1 lb/gal FlC)
000769-00489

(4.17 lb/gal FlC)
050534-00009

/31065AA Chrysanthemum
FBAPBAW Gray mold blight (Botrytis)
FMBCSBL Leaf spot (Septoria)
FBADMCO Ray blight (Mycosphaerella)
(5% D)
007401-00331

(26.5% WP)
000538-00134

(36% WP)
007764-00041

(50% WP)
000004-00290 007401-00330

(75% WP)
000004-00289 000677-00444 000829-00232 007764-00028
050534-00004 050534-00023

(5% WP/D)
007764-00024

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

Chrysanthemum (continued)

(0.4 lb/gal F1C)
001769-00251

(1 lb/gal F1C)
000769-00489

(1.06 lb/gal F1C)
005719-00077

(1.1 lb/gal F1C)
007401-00065

(1.14 lb/gal F1C)
006993-00061

(2.88 lb/gal F1C)
000239-02438 007401-00340

(4.17 lb/gal F1C)
050534-00009

/31085AA Daisies
FBAPBAW Gray mold blight (Botrytis)
FMBCSBL Leaf spot (Septoria)
FBADMCO Ray blight (Mycosphaerella)
(75% WP)
050534-00004 050534-00023

(1 lb/gal F1C)
000769-00489

(4.17 lb/gal F1C)
050534-00009

/31092AA Dracaena
FMBCFAK Leaf spot (Fusarium)
(75% WP)
050534-00004

(4.17 lb/gal F1C)
050534-00009

/34053AA Euonymus
FAAACDP Anthracnose (Colletotrichum)
(75% WP)
050534-00004

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Listing by Site/Pest and Site/Formulation/Registration Number (continued)

	Euonymus (continued)
	(4.17 lb/gal FlC)
	050534-00009
/34058AA	Firethorn
FEAJFAM	Scab (Fusicladium)
	(75% WP)
	050534-00004 050534-00023
	(1 lb/gal FlC)
	000769-00489
	(4.17 lb/gal FlC)
	050534-00009
/34052AA	Flowering Almond
FBADMCB	Brown rot blossom/twig blight (Monilinia)
	(75% WP)
	050534-00004 050534-00023
	(1 lb/gal FlC)
	000769-00489
	(4.17 lb/gal FlC)
	050534-00009
/35056AA	Flowering Crabapple
FJAFGBI	Cedar-apple rust (Gymnosporangium)
FMBCSCM	Leaf spot (Sphaeropsis)
FEAJVAG	Scab (Venturia)
	(26.5% WP)
	000538-00134
	(75% WP)
	050534-00004 050534-00023
	(1 lb/gal FlC)
	000769-00489
	(4.17 lb/gal FlC)
	050534-00009
/35057AA	Flowering Dogwood
FMBCSBL	Leaf spot (Septoria)
	(75% WP)
	050534-00004 050534-00023

Flowering Dogwood (continued)

(1 lb/gal FlC)
000769-00489

(4.17 lb/gal FlC)
050534-00009

/34061AA
FBADMCB

Flowering Quince
Brown rot blossom/twig blight (Monilinia)
(75% WP)
000004-00289 000677-00444 000829-00232 002204-00019
007764-00028 050534-00004 050534-00023

(1 lb/gal FlC)
000769-00489

(4.17 lb/gal FlC)
001812-00266 002204-00018 006651-00030 010465-00013
050534-00008 050534-00009

/31108AA **Geranium**
FBAPBAW Gray mold blight (Botrytis)
FJAAQBB Rust
(5% D)
007401-00331

(26.5% WP)
000538-00134

(36% WP)
007764-00041

(50% WP)
000004-00290 007401-00330

(75% WP)
000004-00289 000677-00444 000829-00232 007764-00028
050534-00004 050534-00023

(5% WP/D)
007764-00024

/31111AA **Gladiolus**
FMCDBAW Botrytis leaf and flower spot
FMCDCFH Curvularia leaf and flower spot
(75% WP)
050534-00004 050534-00023

(1 lb/gal FlC)
000769-00489

(4.17 lb/gal FlC)
050534-00009

/34066AA **Hawthorn**
FBATFAA Leaf blight (Fabraea)
FJAFGBI Rust (Gymnosporangium)
(75% WP)
050534-00004 050534-00023

(1 lb/gal FlC)
000769-00489

(4.17 lb/gal FlC)
050534-00009

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Appendix B

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

/34070AA	Holly
FBBHRAM	Rhizoctonia web blight
	(75% WP)
	050534-00004
	(4.17 lb/gal FlC)
	050534-00009
/31121AA	Hollyhock
FJAAQBB	Rust
	(75% WP)
	050534-00004 050534-00023
	(1 lb/gal FlC)
	000769-00489
	(4.17 lb/gal FlC)
	050534-00009
/35071AA	Horsechestnut
FAAAGAP	Anthracnose (Glomerella)
FCADGBG	Leaf blotch (Guignardia)
	(75% WP)
	050534-00004
	(4.17 lb/gal FlC)
	050534-00009
/34073AA	Hydrangea
FMBCCBM	Leaf spot (Cercospora)
FMBCSBL	Leaf spot (Septoria)
FJAAPEK	Rust (Pucciniastrum)
	(75% WP)
	050534-00004
	(4.17 lb/gal FlC)
	050534-00009

/31126AA Iris
FBADBAW Botrytis blossom blight
FMBCDBD Leaf spot (Didymellina)

(5% D)
000769-00525 007401-00331

(26.5% WP)
000538-00134

(36% WP)
007764-00041

(50% WP)
000004-00290 007401-00330

(75% WP)
000004-00289 000677-00444 007764-00028 050534-00004
050534-00023

(5% WP/D)
007764-00024

(0.4 lb/gal F1C)
001769-00251

(1 lb/gal F1C)
000769-00489

(1.06 lb/gal F1C)
005719-00077

(1.1 lb/gal F1C)
007401-00065

(1.14 lb/gal F1C)
006993-00061

(2.88 lb/gal F1C)
000239-02438

(4.17 lb/gal F1C)
050534-00009

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

/34078AA Japanese Andromeda
FDACPCN Phytophthora dieback
(75% WP)
050534-00004 050534-00023

(1 lb/gal FlC)
000769-00489

(4.17 lb/gal FlC)
050534-00009

/39010AA Leatherleaf Fern
FBAAACC Ascochyta blight
FMBCCBM Leaf spot (Cercospora)
FMBCCFO Leaf spot (Cylindrocladium)
FBAARAM Rhizoctonia blight
(50% WP)
000004-00290

(75% WP)
000004-00289 000677-00444 050534-00004 050534-00023

(1 lb/gal FlC)
000769-00489

(1.06 lb/gal FlC)
005719-00077

(4.17 lb/gal FlC)
050534-00009

/34088AA Ligustrum
FMBCCBM Leaf spot (Cercospora)
(75% WP)
050534-00004 050534-00023

(1 lb/gal FlC)
000769-00489

(4.17 lb/gal FlC)
050534-00009

/31131AA
FBAPBAW

Lilies
Gray mold blight (Botrytis)
(75% WP)
050534-00004 050534-00023

(1 lb/gal FlC)
000769-00489

(4.17 lb/gal FlC)
050534-00009

/31141AA
FMBSCFH

Moses-in-the-cradle
Tan leaf spot (Curvularia)
(50% WP)
000004-00290

(75% WP)
000004-00289 000677-00444 050534-00004 050534-00023

(1 lb/gal FlC)
000769-00489

(4.17 lb/gal FlC)
050534-00009

/34097AA
FMBCCBM

Mountain-laurel
Leaf spot (Cercospora)
(75% WP)
050534-00004 050534-00023

(1 lb/gal FlC)
000769-00489

(4.17 lb/gal FlC)
050534-00009

/34103AA
FJAAQBB

Oregongrape
Rust
(75% WP)
050534-00004 050534-00023

(1 lb/gal FlC)
000769-00489

(4.17 lb/gal FlC)
050534-00009

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

/35007AA /35007DA	Ornamental and Forest Tree Conifers
FKAFBAW	Botrytis seedling blight
FBAVLBK	Lophodermium needle cast
FDAGPBS	Phoma twig canker
FBAVRAH	Rhabdocline needle cast [Douglas-fir]
FBAVRAR	Rhizosphaera needle cast [spruces]
FMAJSAJ	Scirrhia brown spot
FDAGSAL	Scleroderris canker
FBBGSBS	Sirococcus tip blight
FBAVPBD	Swiss needle cast (Phaeocryptopus)
	(26.5% WP) 000538-00134
	(50% WP) 000004-00290
	(75% WP) 000677-00444 050534-00004 050534-00023
	(4.17 lb/gal FlC) 001812-00266 050534-00008 050534-00009
/34106AA	Pachysandra
FBBJVAL	Volutella leaf and stem blight
	(75% WP) 050534-00004
	(4.17 lb/gal FlC) 050534-00009
/31387AA	Parlor Palm
FMBCHAM	Helminthosporium leaf spot
	(75% WP) 050534-00004
	(4.17 lb/gal FlC) 050534-00009

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

/31154AA	**Petunias**
FIAXPCN	Crown rot (Phytophthora)
FBAABAW	Botrytis blight
	(75% WP)
	050534-00004 050534-00023
	(1 lb/gal FlC)
	000769-00489
	(4.17 lb/gal FlC)
	050534-00009
/31155AA	**Philodendron**
FMBCDAB	Leaf spot (Dactylaria)
FBAAPCN	Phytophthora blight
	(50% WP)
	000004-00290
	(75% WP)
	000004-00289 000677-00444 050534-00004 050534-00023
	(1 lb/gal FlC)
	000769-00489
	(1.06 lb/gal FlC)
	005719-00077
	(1.14 lb/gal FlC)
	006993-00061
	(4.17 lb/gal FlC)
	050534-00009
/34110AA	**Photinia**
FMBCFAA	Leaf spot (Fabraea)
	(75% WP)
	050534-00004
	(4.17 lb/gal FlC)
	050534-00009
/35101AA	**Poplar**
FMBCMAH	Leaf spot (Marssonina)
	(75% WP)
	050534-00004
	(4.17 lb/gal FlC)
	050534-00009

/31373AA Prayer Plant
FMBCHAM Helminthosporium leaf spot
(75% WP)
050534-00004 050534-00023

(4.17 lb/gal FlC)
050534-00009

/34402AA Purpleleaf Sand Cherry
FBADMCB Brown rot blossom/twig blight (Monilinia)
(75% WP)
050534-00004 050534-00023

(1 lb/gal FlC)
000769-00489

(4.17 lb/gal FlC)
050534-00009

/35105AA Red Oak
FAAAGAT Anthracnose (Gnomonia)
FMBCAAN Leaf spot (Actinopelte)
FEAFTAB Leaf blister (Taphrina)
(75% WP)
050534-00004

(4.17 lb/gal FlC)
050534-00009

/34118AA Rhododendron Hybrids/Cultivars
FBADOAV Ovulinia petal blight
FDACPCN Phytophthora dieback
(75% WP)
050534-00004 050534-00023

(1 lb/gal FlC)
000769-00489

(4.17 lb/gal FlC)
050534-00009

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Appendix B

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

/34120AA Rose
FMAEDBS Black spot (Diplocarpon)
FBADBAW Botrytis blossom blight
FFACSCO Powdery mildew (Sphaerotheca) [suppression]

(5% D)
000769-00525 007401-00331

(26.5% WP)
000538-00134

(36% WP)
007764-00041

(50% WP)
000004-00290 007401-00330

(75% WP)
000004-00289 000677-00444 000829-00232 007764-00028
050534-00004 050534-00023

(5% WP/D)
007764-00024

(3.75% EC)
007401-00062

(6% EC)
007401-00067

(0.4 lb/gal FlC)
001769-00251

(1 lb/gal FlC)
000769-00489

(1.06 lb/gal FlC)
005719-00077

(1.1 lb/gal FlC)
007401-00065

(1.14 lb/gal FlC)
006993-00061

(2.88 lb/gal FlC)
000239-02438 007401-00340

(4.17 lb/gal FlC)
050534-00009

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Listing by Site/Pest and Site/Formulation/Registration Number (continued)

/31414AA	Statice
FAAACDP	Anthracnose (Colletotrichum)
FBATBAW	Botrytis leaf blight
FMBCAAX	Leaf spot (Alternaria)
FMBCCBM	Leaf spot (Cercospora)
	(75% WP)
	050534-00004 050534-00023
	(4.17 lb/gal F1C)
	050534-00009
/35119AA	Sycamore
FAAAGAT	Anthracnose (Gnomonia)
	(75% WP)
	050534-00004
	(4.17 lb/gal F1C)
	050534-00009
/31272AA	Syngonium
FMBCCBF	Leaf spot (Cephalosporium)
	(75% WP)
	050534-00004
	(4.17 lb/gal F1C)
	050534-00009
/34137AA	Viburnum
FFACMBT	Powdery mildew (Microsphaera)
	(75% WP)
	050534-00004 050534-00023
	(1 lb/gal F1C)
	000769-00489
	(4.17 lb/gal F1C)
	050534-00009
/31213AA	Zinnia
FFACEBJ	Powdery mildew (Erysiphe)
	(5% D)
	000769-00525 007401-00331
	(26.5% WP)
	000538-00134
	(50% WP)
	000004-00290 007401-00330

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

Zinnia (continued)

(75% WP)
000004-00289 000677-00444 000829-00232 050534-00004
050534-00023

(0.4 lb/gal FlC)
001769-00251

(1 lb/gal FlC)
000769-00489

(1.06 lb/gal FlC)
005719-00077

(1.1 lb/gal FlC)
007401-00065

(1.14 lb/gal FlC)
006993-00061

(2.88 lb/gal FlC)
000239-02438 007401-00340

(4.17 lb/gal FlC)
050534-00009

GREENHOUSE FOOD CROP

(Agricultural Crops)

/11005CA Tomato
FBAMAAX Early blight (Alternaria)
FMAXSDG Gray leaf spot (Stemphylium)
FHACBAW Gray mold (Botrytis)
FBASPCN Late blight (Phytophthora)
FHACCCV Leaf mold (Cladosporium)
(90% P/T)
050534-00019

(20% Impr)
000070-00223 050534-00021

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Appendix B

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

GREENHOUSE NON-FOOD CROP

(Ornamental Plants and Forest Trees)

(foliage and bloom treatment)

/31012CA African Violets
FBAPBAW Gray mold blight (Botrytis cinerea)
(90% P/T)
050534-00019

(20% Impr)
000070-00223 050534-00021

/31013CA Ageratum
FBAPBAW Gray mold blight (Botrytis cinerea)
(90% P/T)
050534-00019

(20% Impr)
000070-00223 050534-00021

/31017CA Alyssum
FBAPBAW Gray mold blight (Botrytis cinerea)
(90% P/T)
050534-00019

(20% Impr)
000070-00223 050534-00021

/31022CA Aphelandra
FBAPBAW Gray mold blight (Botrytis cinerea)
(20% Impr)
000070-00223 050534-00021

/31025CA Asparagus Fern
FBAPBAW Gray mold blight (Botrytis cinerea)
(20% Impr)
000070-00223

/34022CA Azalea
FBAPBAW Gray mold blight (Botrytis cinerea)
(90% P/T)
050534-00019

(20% Impr)
000070-00223 050534-00021

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Listing by Site/Pest and Site/Formulation/Registration Number (continued)

/31049CA Calceolaria
FBAPBAW Gray mold blight (Botrytis cinerea)
(20% Impr)
000070-00223 050534-00021

/31058CA Celosia
FBAPBAW Gray mold blight (Botrytis cinerea)
(90% P/T)
050534-00019

(20% Impr)
000070-00223 050534-00021

/31065CA Chrysanthemum
FBAPBAW Gray mold blight (Botrytis cinerea)
(90% P/T)
050534-00019

(20% Impr)
000070-00223 050534-00021

/31066CA Cineraria
FBAPBAW Gray mold blight (Botrytis cinerea)
(20% Impr)
000070-00223 050534-00021

/31080CA Cyclamen
FBAPBAW Gray mold blight (Botrytis cinerea)
(20% Impr)
000070-00223 050534-00021

/31087CA Dianthus
FBAPBAW Gray mold blight (Botrytis cinera)
(20% Impr)
000070-00223 050534-00021

/31089CA Dieffenbachia
FBAPBAW Gray mold blight (Botrytis cinera)
(20% Impr)
000070-00223

/35044CA Douglas-fir
FBAPBAW Gray mold blight (Botrytis cinera)
(20% Impr)
000070-00223

/31093CA **Easter Lily**
FBAPBAW Gray mold blight (Botrytis cinera)
(20% Impr)
000070-00223 050534-00021

/34053CA **Euonymus**
FBAPBAW Gray mold blight (Botrytis cinera)
(90% P/T)
050534-00019

(20% Impr)
000070-00223 050534-00021

/34057CA **Ficus**
FBAPBAW Gray mold blight (Botrytis cinera)
(20% Impr)
000070-00223

/35051CA **Fir**
FBAPBAW Gray mold blight (Botrytis cinera)
(20% Impr)
000070-00223

/31104CA **Fuchsia**
FBAPBAW Gray mold blight (Botrytis cinera)
(90% P/T)
050534-00019

(20% Impr)
000070-00223 050534-00021

/31108CA **Geranium**
FBAPBAW Gray mold blight (Botrytis cinera)
(90% P/T)
050534-00019

(20% Impr)
000070-00223 050534-00021

/31112CA **Gloxinia**
FBAPBAW Gray mold blight (Botrytis cinera)
(20% Impr)
000070-00223 050534-00021

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

/34073CA FBAPBAW	Hydrangea Gray mold blight (Botrytis cinera) (90% P/T) 050534-00019 (20% Impr) 000070-00223 050534-00021
/34083CA FBAPBAW	Lantana Gray mold blight (Botrytis cinera) (20% Impr) 000070-00223 050534-00021
/34090CA FBAPBAW	Mahonia Gray mold blight (Botrytis cinera) (20% Impr) 000070-00223
/31137CA FBAPBAW	Marigold Gray mold blight (Botrytis cinera) (90% P/T) 050534-00019 (20% Impr) 000070-00223 050534-00021
/31143CA FBAPBAW	Nasturtium Gray mold blight (Botrytis cinera) (20% Impr) 000070-00223 050534-00021
/35088CA FBAPBAW	Norfolk Island Pine Gray mold blight (Botrytis cinera) (20% Impr) 000070-00223
/31149CA FBAPBAW	Pansies Gray mold blight (Botrytis cinera) (20% Impr) 000070-00223
/35100CA FBAPBAW	Ponderosa Pines Gray mold blight (Botrytis cinera) (20% Impr) 000070-00223

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

/31262CA FBAPBAW	Pothos Gray mold blight (Botrytis cinera) (20% Impr) 000070-00223
/31284CA FBAPBAW	Primrose Gray mold blight (Botrytis cinera) (90% P/T) 050534-00019 (20% Impr) 000070-00223 050534-00021
/31306CA FBAPBAW	Purple Velvetplant Gray mold blight (Botrytis cinera) (20% Impr) 000070-00223
/34120CA FBAPBAW	Rose Gray mold blight (Botrytis cinera) (90% P/T) 050534-00019 (20% Impr) 000070-00223 050534-00021
/31171CA FBAPBAW	Salvia Gray mold blight (Botrytis cinera) (90% P/T) 050534-00019 (20% Impr) 000070-00223 050534-00021
/31174CA FBAPBAW	Scarlet Sage Gray mold blight (Botrytis cinera) (20% Impr) 000070-00223 050534-00021
/31176CA FBAPBAW	Schizanthus Gray mold blight (Botrytis cinera) (20% Impr) 000070-00223 050534-00021

/31184CA **Snapdragon**
FBAPBAW Gray mold blight (Botrytis cinera)
(90% P/T)
050534-00019

(20% Impr)
000070-00223 050534-00021

/34130CA **Spirea**
FBAPBAW Gray mold blight (Botrytis cinera)
(20% Impr)
000070-00223

/31206CA **Verbena**
FBAPBAW Gray mold blight (Botrytis cinera)
(90% P/T)
050534-00019

(20% Impr)
000070-00223 050534-00021

/31213CA **Zinnia**
FBAPBAW Gray mold blight (Botrytis cinera)
(90% P/T)
050534-00019

(20% Impr)
000070-00223 050534-00021

(foliage treatment only)

/31026CA **Aster**
FBAPBAW Gray mold blight (Botrytis cinera)
(90% P/T)
050534-00019

(20% Impr)
000070-00223 050534-00021

/31034CA **Begonia**
FBAPBAW Gray mold blight (Botrytis cinera)
(90% P/T)
050534-00019

(20% Impr)
000070-00223 050534-00021

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Listing by Site/Pest and Site/Formulation/Registration Number (continued)

/31041CA
FBAPBAW

Blue Fescue
Gray mold blight (Botrytis cinera)
(90% P/T)
050534-00019

(20% Impr)
000070-00223 050534-00021

/31227CA
FBAPBAW

Bugleweed
Gray mold blight (Botrytis cinera)
(90% P/T)
050534-00019

(20% Impr)
000070-00223 050534-00021

/31047CA
FBAPBAW

Caladium
Gray mold blight (Botrytis cinera)
(90% P/T)
050534-00019

(20% Impr)
000070-00223 050534-00021

/31057CA
FBAPBAW

Carnation
Gray mold blight (Botrytis cinera)
(20% Impr)
000070-00223 050534-00021

/31071CA
FBAPBAW

Coleus
Gray mold blight (Botrytis cinera)
(90% P/T)
050534-00019

(20% Impr)
000070-00223 050534-00021

/31106CA
FBAPBAW

Garden Balsam
Gray mold blight (Botrytis cinera)
(90% P/T)
050534-00019

(20% Impr)
000070-00223 050534-00021

/34184CA
FBAPBAW

Hedera
Gray mold blight (Botrytis cinera)
(20% Impr)
000070-00223 050534-00021

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Listing by Site/Pest and Site/Formulation/Registration Number (continued)

FORESTRY

(Ornamental Plants and Forest Trees)

/35007AA Ornamental and Forest Tree Conifers
/35007DA
/30002AA
FKAFBAW Botrytis seedling blight
FBAVLBK Lophodermium needle cast
FDAGPBS Phoma twig canker
FBAVRAH Rhabdocline needle cast [Douglas-fir]
FBAVRAR Rhizosphaera needle cast [spruces]
FMAJSAJ Scirrhia brown spot
FDAGSAL Scleroderris canker
FBBGSBS Sirococcus tip blight
FBAVPBD Swiss needle cast (Phaeocryptopus)
(75% WP)
050534-00004 050534-00023

(4.17 lb/gal FlC)
050534-00009

INDOOR

(Wood or Wood Structure Protection Treatment)

/640010A Wood Protection Treatment of Unseasoned Forest Products
/640100A Wood Protection Treatment of Forest Products by Pressure Treatment
FYABQBB Mold
FYAGQBB Sapstain
(4.17 lb/gal FlC)
010465-00013

(4.04 lb/gal FlC)
006651-00030

(Commercial and Industrial Uses)

/810010A Grout (Portland Cement mildew resistant grout)
FYABQBB Mildew
(75% WP)
002204-00019